Options Paper Summary

September, 1990

Forest Commission Mandate

The British Columbia Forest Resources Commission was established under the Ministry of Forests Act on June 29, 1989. The Commission is a permanent, independent body reporting to the Minister with a mandate to review and make recommendations on a wide variety of issues of concern. The Commission currently has the following mandate:

- *to provide the Minister of Forests, and through him the government, with a comprehensive view of what the forests of British Columbia should represent. This view should take into account the full range of forest values, how the forests might be managed to protect and enhance those values, and the total economic value of the forests to the province;*
- *to advise on the effectiveness of Tree Farm Licences as a form of tenure;*
- *to recommend ways to improve public participation in forest planning and management;*
- *to recommend ways of improving forest harvesting practices, focusing on clearcutting and its associated forest practices and their impacts.*

The principal focus of this paper is on the first mandated task, the future of our forests. As the other mandated tasks are, in many ways, integral to the broader task, they are discussed here as well.

Introduction

Historically, British Columbians have viewed the forest as both a never-ending resource and as the central pillar of the economy. Our wealth of trees was used to attract investment, open up the province, and help the government to deliver a full range of social programs and services.

British Columbians no longer view the forest in such simple terms. We now see our trees as a fragile resource, and recognize that the forest holds many values beyond dollars and cents. These realizations have left British Columbians concerned about what lies over the horizon.

This paper was prepared in response to those concerns. It describes different visions of the future of our forests, and different ways to realize those visions through better forest land management. It is based on over 1700 written submissions to the Forest Resources Commission, on hundreds of presentations made to public meetings in 20 communities throughout B.C., and on independent research conducted for the Commission.

While there is virtually no unallocated forest land left in B.C., almost everyone who wrote or spoke to the Commission agreed that our forest wealth should continue to be used to meet social and economic goals. However, some conditions were attached:

- it must be done in an environmentally-sensitive way;
- future and present needs must be balanced;
- the full range of forest values must be considered.

In turn, three distinct visions of the future of our forests emerged before the Commission. They are:

The preservationist view. This view holds that the only way to protect non-timber values like parks, wilderness preserves, old-growth forest and unlogged community watersheds is to withdraw significant portions of the working forest from timber production. Long-term social and economic losses would result.

The evolutionist view. This view holds that there is essentially nothing wrong with the current structure, but that some forest industry and government practices have to be adjusted to address public concerns. Better public education about forest practices is needed. Continued social unrest could be expected.

The enhanced stewardship view. This view holds that, while change must be accommodated, the forest industry is too vital to the economy of the province to be sacrificed. It also believes increased targets for all forest values can be achieved through intensive integrated resource management. Direct cost of forest management would increase.

Elements of one or more of these three visions were present in almost every submission. They emerged in one or another of five fundamental themes: a comprehensive land use plan/strategy, forest resource management, public involvement, economics, and education. Each of these themes is discussed in this paper.

The Commission heard but could not support options that reject the basic assumptions of a consumer society. These represented the views of a very small minority and would mean a radical change in life-style and availability of basic services to British Columbians.

A.L. (SANDY) PEEL
Chairman
Forest Resources Commission

In the margin of each section of the Options Paper, readers will find a list of questions applicable to the topic under discussion. These are questions the Commission members faced, and which they ask the public to consider.

Land Use Strategy

"A comprehensive land use plan will mean better stewardship of the forests for all values and uses."

B.C.'s forest land base covers an estimated 95 million hectares, of which 43.3 million hectares could grow a commercial timber crop.

Over 95 per cent of the provincial land base is owned by the Crown. Responsibility for management of these lands is shared by four ministries — Forests, Parks, Environment, and Crown Lands — and is sometimes delegated to private companies. This division of management responsibility reflects the broad range of land use classifications within B.C.

The Crown is ultimately responsible for the stewardship of all lands in the province; however, private land is generally unregulated at present.

The Commission heard most people say they want a further refinement of the land management system. They believe a comprehensive land use plan will mean better stewardship of the forests for all values and uses. They see it as providing a strategic planning base to guide operational planning. It was broadly stated that land use classifications should reflect the natural capacity of a particular land unit.

Land use planning can either be centralized (top-down) or decentralized (bottom-up). People listed four principles to guide development of a comprehensive land use plan:

- community stability must be considered;
- environmental quality should be maintained;
- land use classifications should reflect and rank all forest values;
- land use classifications must reflect biogeoclimatic zones and regional diversity.

Detailed inventories of forest resources, and the demands made upon them, are needed before a plan can be developed. Existing inventories are viewed as either inadequate or unsuitable for planning purposes. Local knowledge may be the best source of information.

- *What are the land uses, species and values for which the forest should be managed?*
- *Who should be responsible for inventory information?*
- *Should inventories be developed locally or centrally?*
- *What land base should be included in a comprehensive land use plan?*
- *Should regulation of forest activities be extended to all private land?*
- *How will public input be received and incorporated into the plan?*
- *Who would be responsible for formulating a land use plan?*
- *Should the process be centralized or decentralized?*

In response to these and other concerns, the Commission suggests three options for public consideration:

Option A: Present status

The Ministry of Forests develops overall harvesting plans for the forests and works with licensees on other site-specific plans. Other forest values are accommodated in individual five-year management and working plans.

This option would also see the Provincial Parks system continue to expand to include representative samples of all biogeoclimatic zones, the federal government continue to develop a national parks plan, and the Environment Ministry continue to develop its ecological reserve program.

Option B: Centralized planning

In consultation with various forest users and interest groups, a central planning agency would develop and assign land-use classifications throughout B.C. The provincial cabinet would approve all plans and resolve disputes.

Targets or management levels would be adopted for all forest values. Classifications would have guidelines for permissible activities. Management would be by the appropriate government ministry.

Option 3: Decentralized planning

Overall planning goals and strategies would be established by the province. Detailed classifications would be undertaken at the regional or community level. Management objectives would be tailored to local conditions.

The provincial cabinet would approve each plan and retain the right to resolve disputes.

Forest Resource Management

Respondents to the Commission expressed serious concerns about the way B.C.'s forests are managed. Concerns fell under three broad headings: the tenure system, forest management (including harvesting practices), and community control of the forest.

The tenure system

People were particularly concerned about the degree to which various forest tenures accommodate forest values other than timber, and the extent to which forest tenures transfer stewardship rights and obligations from the government to private management.

The Commission was told that long-term tenures are necessary to maintain investment in processing facilities, and to promote investment in intensive forest management. However, it was also pointed out that there is little evidence to suggest long-term tenures have encouraged intensive forest management.

Other concerns raised about tenure included:

- Native land claims are causing a high level of uncertainty — and, therefore, a lack of investment in intensive forest management;
- forest harvesting rights are concentrated in too-few hands, and control is held largely outside the province;
- as tenures were never granted through competitive bid, the Crown did not receive fair market price;
- the purchase of processing facilities to gain tenure, and the subsequent closing of the processing facility, are becoming more common.

People suggested these concerns be answered by:

- separating tenure from ownership of processing facilities;
- new forms of tenure requiring a holder to manage for all forest values;
- making forest management practices subject to periodic public audit;
- creating more small area-based, community-sensitive tenures;
- turning more Crown land over to private hands, because investment in intensive management is greater on private lands;
- asking the Minister of Forests to give more consideration to community stability in exercising his rights over tenure transfers.

In response to these and other concerns, the Commission suggests five options for public consideration.

Option A: Current status

Retain existing forms of tenure, Timber Supply Area (TSA) and Tree Farm Licence (TFL) forest land allocation. Tenure holders are responsible for protection of other values, but have no active management responsibilities for values other than timber.

Option B: Tree Farm Licences expanded

Existing forest licence holders are permitted to "roll over" volume-based quotas into area-based TFLs.

- *How should government ministries be restructured to provide for better integrated resource management?*
- *Should decisions on forest resource use and management be made on a more local level?*
- *Are present forest land management practices adequate to ensure community stability?*
- *Should forest tenure be separated from ownership of production facilities?*
- *Should practices on forest tenures be subject to public audit?*
- *Should the forest tenure holder manage for all resource values?*
- *Should clearcutting, slash burning and road building be more rigorously controlled even if that means loss of competitive advantage?*

Option C: Forest management agreements added to TFLs

TFL requirements are expanded to include managing for all forest values through a forest management agreement, which would contractually require that forests be managed for all values.

"The forests must be managed for the full range of values and resource managers must be accountable for their results."

Option D: Gradual conversion to more small area-based tenure agreements with resource management agreements

All present licence holders are given the option of converting to smaller area-based tenures or retaining their present licence without renewal provision, provided contractual requirements are met. New entrants such as communities, individuals and woodlot associations can bid on new area-based tenures as timber volume becomes available.

Option E: Rapid conversion to more small area-based tenure agreements

Cancel all current tenure licences and put new licences up for bid. Area-based licences cannot be sold, transferred or amalgamated.

Forest management

People told the Commission they perceive seven fundamental problems with current stewardship policies and practices. They believe that:

- forests are being managed for timber at the expense of other forest values;
- present harvest levels cannot be maintained;
- the principle of even-aged management is inconsistent with retaining biodiversity in forest systems, and with consideration of other forest values;
- there is limited opportunity for effective public input to the planning process;
- unregulated forest practices on private land are unacceptable;
- the Forest Service cannot adequately fulfill its stewardship role;
- there is a lack of good inventory information needed to support good resource stewardship.

Forest harvesting practices, and whether they are ecologically sound and sustainable, were a major public concern. Particular attention was drawn to large contiguous clearcuts, slash burning, poorly-constructed roads and excessive soil degradation. It was felt that no one harvesting practice suits all conditions, and that methods had to be tailored to suit different biological species and different biogeoclimatic zones.

In addition, several principles were suggested to guide management of forest resources. They were:

- manage forests for the full range of values;
- make resource managers accountable for their results;
- follow management practices which ensure economic and environmental sustainability;
- reflect regional diversity;
- reflect biological and biogeoclimatic diversity;
- protect forests from fire, insects, disease and noxious weeds.

Adopting the above principles into forest management practices will result in full integrated resource management, and in significantly increased direct costs.

Forest Resource Management
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Many respondents pointed out that taking this course may mean changing the present division of powers and management responsibilities among ministries.

In response to these and other concerns, the Commission suggests six options for public consideration.

Option A: Current status

Ministries retain their present status: i.e., the Ministry of Forests is responsible for forestry, range, recreation, etc., while the Ministry of Environment is responsible for fish and wildlife populations, water, etc.

Option B: Development of a new Forest Resources Act

A new Act links forest-related mandates of present government ministries which work within the framework of the new Act but do not merge.

Option C: Creation of a forest resources ministry and independent corporation

A "neutral" resource ministry is created to regulate forest uses, and a Crown corporation to manage forests.

Timber harvesting

Option A: Current status

Natural forests continue to be cut as the prime source of fibre and are replaced largely with managed stands. Clearcutting remains the primary method of extraction.

Option B: Selection logging

Natural forests are selectively logged where possible. Forests where selection logging is not appropriate are left unlogged.

Option C: Increased sensitivity

Harvesting practices on all forested land would be required to be sensitive to a much wider range of concerns. The actual method chosen would depend in large measure on the species and the biogeoclimatic zone.

Community stability

Respondents expressed concern about how tenure agreements and management practices affect the stability of their communities. They asked that consideration be given to:

- maintaining employment and investment in rural communities;
- giving communities greater control of forest land management areas, including creation of community forests.

They asked the Commission to prevent the following:

- alienation of a working forest to a classification that severely restricts timber harvesting;
- cut determinations that may be consistent with an area-based tenure holder's Allowable Annual Cut (AAC), but which result in timber shortages for a particular community;
- log exports at the expense of local employment.

In response to these and other concerns, the Commission suggests two options for public consideration.

Option A: Current Status

Tenure-based processing facilities have traditionally provided community stability. Increasingly, tenures are being held by absentee companies which may be insensitive to community needs. Processing facilities may be purchased for timber quota and closed. Wood flows between forest districts. Less consideration is given to other community concerns such as water and recreation.

Option B: More Community Control

Community tenures, smaller area-based tenures and local woodlots are encouraged. Only a small part of the tenure, or none at all, is allowed to be sold with the purchase of processing facilities. Flow of wood is restricted between districts. Communities can manage for other values.

Public Involvement

"We are not given enough opportunity to help develop forest management plans or to make decisions about how forest land should be used."

As a society we expect the public to be involved in all stages of forest planning and management.

However, respondents told the Commission they believe they are not given enough opportunity to help develop forest management plans, or to make decisions about how forest land should be used. In rural areas, people worry that urban-influenced decisions have negative impacts on their communities. They say values held by forest managers do not reflect those of communities, or of the province generally.

Respondents said the current processes for public involvement are not understood, and come too late in the development process to be effective. Uncertainties about long-term planning also drew criticism

- *What role should resource managers play in the planning process?*
- *Should community or regional resource boards be established?*
- *Should public involvement be limited to advice or extend to decision-making?*
- *What should be the form of dispute resolution?*

It was felt that community involvement in land use planning and forest management would ensure informed public input. Local knowledge was seen as critical to the process, and community resource boards were suggested as one possible model for input.

To be effective, however, people need better information and they should have access to audits of performance.

In response to these and other concerns, the Commission suggests three options for public consideration.

Option A: Current status

The Forest Service continues limited public reviews of Timber Supply Area (TSA) plans and management and working plans. Public hearings are held for new Tree Farm Licences and pulpwood agreements. The Forest Service seeks input from other agencies but retains decision-making powers. Resource use conflicts are referred to ad hoc committees. The provincial cabinet retains ultimate decision-making authority.

Option B: Expand representation on TSA committees

General processes under Option 1 are retained, but TSA committees are expanded to include other user groups.

Option C: Establish regional forest management boards or committees

Committees include the full range of user groups, including local government. Local expertise is used to identify specific values and land use classifications. Resource committees determine management options for various resource users, within broad provincial guidelines. Audits of resource managers' performances are made public.

Glossary of terms

Annual Allowable Cut (AAC):
The amount of timber that is allowed to be cut each year. It is set by the Ministry of Forests to ensure that the rate of harvesting does not outstrip the growth of new timber.

Integrated resource management:
A process to identify, assess and compare all resource values as a basis for making decisions on resource use management.

Management and Working Plan:
A document detailing annual allowable cut, silviculture, environmental constraints, integrated resource management and 5-year cutting plans.

Tenure:
A legal framework providing the right to harvest timber on Crown land, and carrying with it specific forest management responsibilities such as silviculture and fire fighting.

Timber Supply Area (TSA):
A geographic forest management unit. Forest companies manage the timber resource according to stretegic resourcemanagement plans prepared by the Ministry of Forests.

Tree Farm Licence (TFL):
A 25-year replacable agreement between the provincial government and a forest company involving harvesting rights and forest land management obligations in a specific area

Economics

"There is no doubt that our forest resources are the major source of economic wealth and development in British Columbia."

There is no doubt B.C.'s forests are the major source of economic wealth and development in B.C. The forest industry accounts for 18 per cent of total employment (243,000 person-years) and 24 per cent ($14.3 billion) of our Gross Domestic Product (GDP). Revenue from our forests also provides $2.8 billion to help cover the cost of health, education and other services.

Tourism, by comparison, accounts for six per cent of our GDP.

Despite the forest industry's contribution to our economic stability, people wonder whether the province is receiving a fair return from timber harvests. They also wonder if all forest values are being accounted for, and if present harvest rates will preclude future economic options.

It was felt that the forest capital base must be sustained and maintained, and that British Columbians must have an optimum return on all forest values.

In terms of a strategy for the years to come, it was suggested that granting rights to timber to attract investment in capital-intensive processing plants does not maximize employment or revenues for the province. People felt more importance should be attached to community stability and value-added manufacturing. They recommended this be done through a competitive log market and a reduction in fibre exports.

- *Can British Columbia afford to forego a major portion of the economic contribution made by the forest industries?*
- *Should fees be charged for all uses of the forests?*
- *Should fibre exports be restricted further?*
- *What factors should be considered in an economic strategy?*
- *Should more timber be made available through a competitive log market?*

In response to these and other concerns, the Commission suggests four options for public consideration.

Option A: Current status

No additional harvesting rights are allocated, except under the small business value-added program and outstanding pulpwood agreements. There is no targeted government assistance.

Option B: Further development of a competitive log market

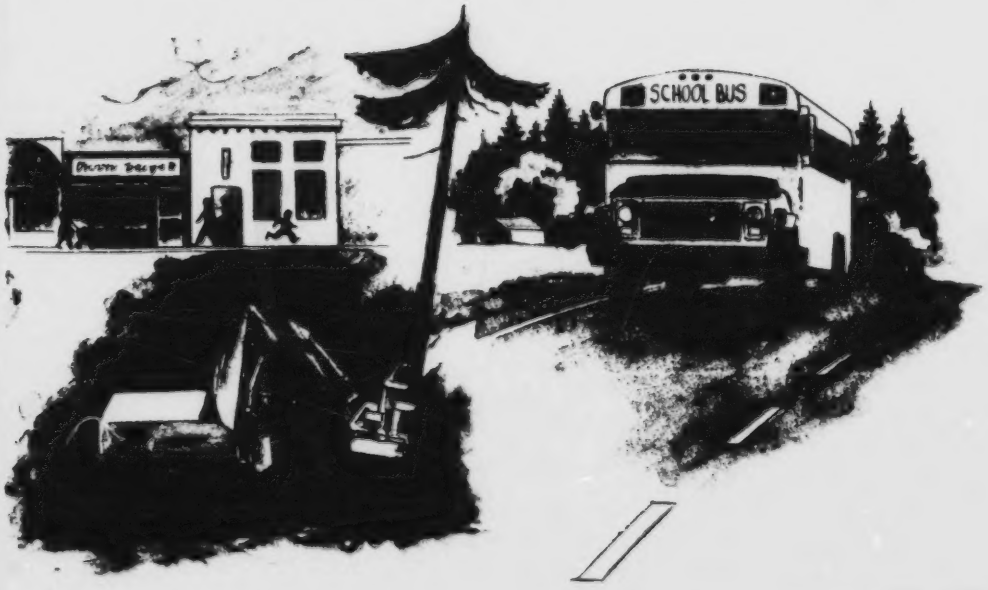
Any new harvesting rights go to persons who have no processing facilities. Small business sales are at "arms length," through log auctions. Quotas are not transferred upon the sale of processing facilities.

Option C: User fees

User fees are introduced for all forest use activities, to reflect the cost of management.

Option D: Introduce "value-added" community tenures

Develop area-based community forests and give communities the right to collect stumpage. Reduce municipal transfer payments in an amount equal to the stumpage potential of the forest. Communities profit if they manage intensively, but can make other choices. Use value-added criteria to allocate timber to users.



Education

"More has to be done to improve the understanding of silvicultural systems, ecological interactions and the importance of other forest values."

Good information is the key to informed debate. The debate over management of our forests, perhaps more so than any other, is in need of balanced, credible information. Communication at all levels also needs to be improved.

In particular, people told the Commission that more has to be done to improve the understanding of silvicultural systems and ecological interactions, and the understanding of the overall importance of other forest values and their interaction with timber harvesting.

The responsibility for improved education begins in our schools. As noted in the School Act (1989): "The purpose of the school system is to enable learners to develop their individual potential and to acquire the knowledge, skills and attitudes needed to contribute to a healthy society and a prosperous, sustainable economy."

- *Should a program of training and certification in basic forest ecology and in forest management practices be introduced for all who work in the woods?*

The education system can respond to the public's need for information about B.C.'s forests by offering balanced, non-aligned programs through formal education channels and "hands on" field experiences. The education system can co-operate in preparing and presenting programs by government, industry, environmental groups and academic communities.

It was suggested that the public school curriculum should reflect a balanced view of the importance of our forests and how they are managed. Technical schools should provide certification courses for all who work in the forests. University programs should reflect the requirement to manage our forests for multiple values.

To the extent that intensive management is adopted, more forestry graduates will be required. An increased capacity at the University of British Columbia or degree-granting capabilities for the new University of the North should be considered.

In response to these and other concerns, the Commission suggests five options for public consideration.

Post-secondary education

Option A: Current status

One provincial university educates foresters and four technical schools educate forest technicians. They do not produce enough graduates to meet the demands of intensive forest management.

Option B: Enhance present faculty at the University of British Columbia

Maintain one degree-granting university in the province with increased funding.

Option C: New faculty of natural resource management

Create a new faculty of natural resource management at the new University of the North.

Education of forest workers

Option A: Current status

Forest workers receive little or no training in the basic environmental consequences of forest harvesting or other forest practices.

Option B: Forest worker training program

Implement a certification program for forest workers to teach basic forestry understanding. Certification to include all forest workers.

For further information please contact:

British Columbia
Forest Resources Commission
Suite 700, 747 Fort Street
Victoria, B.C.
V8V 1X4

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Introduction

This paper provides a framework for detailed discussion on a vision for the future of our forests and a range of options for managing our forest lands to attain that vision. These discussions will take place at a series of workshops to be held in each British Columbia forest region during the fall of 1990.

The decision to conduct workshops comes from the British Columbia Forest Resources Commission's desire to ensure maximum public involvement in carrying out its mandate, which is to:

- provide the Minister of Forests, and through him the government, with a comprehensive view of what the forests of British Columbia represent. This view should take into account the full range of forest values, how the forests might be managed to protect and enhance those values, and the total economic impact of the forests to the province.
- advise on the effectiveness of Tree Farm Licences (TFLs) as a form of tenure.
- recommend ways to improve public participation in forest planning and management.
- recommend ways of improving forest harvesting practices, focusing on clearcutting and its associated forest practices and their impacts.

This past spring the Commission sought and received in excess of 1700 written submissions on the topic, "The Future of Our Forests." These submissions came from all areas of the province, and from all sectors of society. Additionally, the Commission carried out a series of public meetings in 20 communities throughout the province. This paper reflects the range of issues brought to the Commission's attention, a series of options aimed at dealing with those issues, and some discussion of the implications of each option.

In order to gain a more complete understanding of the issues addressed in this paper, and to assist in developing a vision for the future of our forests, the Commission believes some historical perspective is required. *(Appendix I).*

Since the early 1900s, British Columbians have viewed the forests as a prime contributor to the province's economic and social development. Government control of the forest lands was retained and access to the timber resource was used to attract investment and open up the province. Revenues received were used to support other government programs. Throughout this period, the forest was managed primarily for its timber value. Until very recently, little was done to enhance the yield per hectare because there was always "more timber available over the next hill." Other forest values — such as fish, wildlife,water and recreation — were generally considered secondary to timber values. Since there was always "more forest," few people were concerned with preserving representative areas.

Today, for all intents and purposes, there is no unallocated forest. The capacity of primary processing facilities in the sawmilling sector exceeds the Allowable Annual Cut (AAC) and, with the potential for a reduction in annual cut (falldown), the pulp and paper sector may also face shortages. At the same time, society is demanding that values in addition to timber be recognized in the management of our forests.

As British Columbians wrestle with the problems brought on by diverse and increasing demands on a finite resource, three distinct visions of the future of our forests emerged before the Commission.

- One point of view held that the only way to protect the array of non-timber values was to withdraw from the "working forest" significant portions of forested land representative of those values. This vision would see significant areas of the forest committed to parks, wilderness preserves, preserves of old growth, and unlogged community watersheds. In many cases, it was held that the economic activity lost due to these withdrawals could be made up by other activities, such as tourism or value-added manufacturing. Others suggested that British Columbians should be prepared to accept significant reductions in employment and income, along with social dislocation and reduced services.

- Another view said there was essentially nothing wrong with the current structure of, and practices in, the forest sector. However, some past practices, while acceptable in their time, do not meet many of society's present concerns.

Proponents of this view said that while the forest industry and government will have to adjust some practices to address public concerns, lack of public understanding is a major cause of much of the current dissatisfaction. Good public education was therefore seen as a key to resolving many of today's problems.

- A third view held that a number of factors have combined to make major change in the use and management of our forest lands inevitable. These factors include a fully-allocated timber resource, society's demands that other values be recognized and accommodated in our forests, and a shift in market trends from primary processed commodity products to more value-added specialty products.

Proponents of this view held that these fundamental factors have to be accommodated in future forest planning and management. They also held that the forest industry is too crucial to both the social and economic fabric of British Columbia to choose either large-scale preservation or a modified version of the status quo. Enhanced stewardship of all forest resources is seen as the key to both a better life and a wider range of choices. To accomplish this, increases in timber production, parks and wilderness areas, old growth and ecological reserves, recreational usage, etc., would be set. These growth targets would be achieved through intensive, integrated resource management, including intensive silviculture.

Elements of one or more of these visions of the forest were present in almost every submission. These elements tended to fall into one or another of five fundamental themes:

- the need for a comprehensive land use plan/strategy
- forest resource management
- public participation in planning and management
- economics
- better education in the areas of forest practices and the environmental, social and economic importance of the forests

This paper is organized around these themes, in order to facilitate discussion aimed at choosing a vision for the future of our forests and an appropriate management structure for achieving that vision.

Excluded from the discussion is consideration of options that reject the basic assumptions of a consumer society, since these represent the views of a very small minority and would result in a radical change in life-style and the availability of basic services to British Columbians.

Almost all submissions endorsed continued use of the forests to achieve social and economic goals, provided that:

- it was done in an environmentally-sensitive way
- future and present needs were balanced
- the full range of forest values is considered

Finally, four issues came through at the hearings with a clarity that led the Commission to submit an interim report to government in July, 1990. The Commission believes the government can reasonably take action now on issues related to inventories, Timber Supply Area (TSA) Steering Committees and education. The Commission also heard serious and extensive concern about the land claims issue and felt obliged to pass these concerns through to the government. *(Appendix II).*

A.L. (Sandy) Peel
Chairman

This Options Paper is organized into five sections dealing with land use strategy/planning, integrated resource management, public involvement, economics and education.

In the margins of each of the sections, readers will find questions and issues applicable to the topic under discussion. These are questions the Commission members faced, and which they ask the public to consider.

At the end of each section, readers will find a list of options relating to the issues being faced, plus a discussion of the implications each option might have.

Land Use Strategy

1

Questions and issues to be addressed

1. Land Use Strategy

Guiding principles

- *community stability*
- *land classifications should reflect all forest values and rank those values*
- *environmental quality should be maintained*
- *land classifications need to reflect biogeoclimatic zones and regional diversity*

Related issues

- *resource stewardship*
- *inventory*
- *the land base and land classification*
- *responsibility for land use planning*

Discussion

1. Resource stewardship

Should more of B.C.'s Crown forest land be privatized?

Development of a comprehensive land use plan has been advocated as a means of ensuring the effective stewardship of the forests for the full range of forest resource values and uses. The need for a comprehensive land use plan also arises from the fact that over 95 per cent of the province has been retained as Crown provincial land, rather than being owned and managed as private property.

In contrast, federal and state lands account for 29 per cent in the United States and 26 per cent in Sweden.

A comprehensive land use plan could be used to allocate the forest land base to particular uses or management alternatives within a broad framework of provincial, social, cultural, environmental and economic goals.

Particular uses or specific values are drawn from the public forests by the full spectrum of society. However, there is no clearly-defined process for allocating the right to use or reserve the forest for specific values. Land use classifications that assign priorities according to particular qualities and characteristics of land areas provide a means for accomplishing a stewardship role now considered lacking.

Questions and issues to be addressed

This draft vision statement for the future of our forests could provide a framework for the future stewardship of the forests:

> ***"The forest resources of British Columbia must provide for the social, spiritual, environmental and economic well-being of British Columbians. They must be managed in such a way that these values are maintained for future generations."***

Guiding principles for land use planning were drawn from the submissions to the Forest Resources Commission. These principles will act to focus the broad range of management options within the land use plan, and can be summarized as follows:

If comprehensive land use planning is introduced in British Columbia, for what land uses, species and values will the forests be managed?

- Stewards of the forest resource will need to develop land use classifications that reflect biogeoclimatic zones and regional diversity.
- Land classifications should reflect all forest values and rank those values.
- Forest values must be allocated in such a way as to consider community stability and ensure maintenance of environmental quality.
- In essence, the classification of forest land units should reflect and maintain the wide variety of forest values found within the province and recognize the need to provide for future values and uses.

2. Inventory

Essential to the development of a land use plan is an inventory of the forest resource base and the demands made upon it. The quality of inventory information, in relation to the full range of forest values, will determine how well management decisions are made regarding resource allocations.

The Commission received reports from government, had studies prepared by consultants, and reviewed an extensive number of submissions related to the resource base, resource values and site-specific land uses.

In your experience, are inventories for each use, species and value adequate for planning purposes?

Inventories of specific forest resource or forest-based activities are currently compiled by several government Ministries (e.g. Forests, Crown Lands, Environment, Parks, Agriculture and Fisheries). Other inventories are collected by Tree Farm Licensees, private organizations, as well as other governments or private individuals.

Are available technical and financial resources adequate to allow the introduction of the plan? If not, what would be required? What time frame should be adopted?

The inventories are not all collected on compatible systems, however. Moreover, it was found that, in general, many inventories were either non-existent, inadequate for planning purposes, or not suitable for making specific decisions.

Questions and issues to be addressed

If a decision is made to introduce a land use plan, it must be determined which forest values will be inventoried. The quality of the inventories will be affected by the current availability of information and the time and finances made available to develop them. It was suggested in many submissions that the use of local knowledge would provide the most detailed inventories in a cost-effective and timely manner. It was also suggested that initial inventory efforts could be concentrated on known areas of resource-use conflict.

The wide variety of sources of inventory information and differences in systems for storing and distributing the data raise the question of whether a single agency should be developed to collect and maintain the inventories.

Who should be responsible for developing and maintaining forest resource and forest use inventories?

The appeal of a single source of inventory data lies in the convenience of access to consistent planning information. In contrast to this centralized inventory model is the regional approach to inventory development. This model would see local expertise brought to bear on inventories necessary for specific local land use planning. The choices related to a centralized or a decentralized land use planning system are further discussed in the following sections.

In your experience, is better inventory information currently available at the local or community level?

(An interim recommendation has been made to government. Please see Appendix II.)

3. The land base and land classification

British Columbia lands are presently managed by provincial government ministries; by companies that have been delegated management responsibilities, such as Tree Farm Licensees; or by private land owners.

The majority of public lands in the province are administered by the Ministry of Forests as Provincial Forests. The Forest Ministry's Forest Range and Resource Analysis (1984) document estimates Provincial Forests at approximately 89 million hectares (excluding major parks). Of this area, an estimated 43.3 million hectares could grow a commercial timber crop.

When this area is netted down to exclude areas that cannot be logged for environmental or economic reasons, a land base of 21.3 million hectares of "net presently productive, available and suitable" forest land remains.

If the province adopts land use planning, a decision must be made as to which land will be included in the land use plan. Private forest land use is generally unregulated at present.

What land base should be included in a comprehensive land use plan?

Questions and issues to be addressed

Should regulation of forestry activities be extended to all private lands?

Private forest lands that are regulated are those which were included in TFLs or those which have been designated as "managed forest lands" in order to receive favourable tax treatment.

Many submissions called for the regulation of forestry activities on private lands by either a Forest Practices Act or by a "zoning" system similar to the Agricultural Land Reserve.

Summary of Provincial Forest Land Area: TSAs and TFLs

		Area in Hectares
Total Area — Excluding major parks		88,907,918
Alienations		
• Crown Grants		
• Parks		
Total Alienations	6,938,022	
Unalienated Area		81,969,896
Non Forest		
• Alpine Forest		
• Water		
• Open Range		
Total Not Productive	38,705,293	
Forest Land		43,264,603
Land Losses Accounted For in TSA Reports		
• ESAs and Land Withdrawals		
Total Not Available	2,383,746	
Available Forest Land		40,880,857
Not suitable		
• inoperable		
• problem forest types		
Total Not Suitable	14,713,917	
Potentially Productive Available and Suitable		26,166,940
Not Stocked		
• NSR/DSD		
• NC		
Total Not Stocked	3,560,368	
Presently Productive Available and Suitable		22,606,572
Land Losses Not Accounted For in TSA Reports		
Total Additional		
Not Available	1,316,226	
Net Presently Productive Available and Suitable		21,290,346

Questions and issues to be addressed

Other Crown lands are managed by the Ministries of Parks, Environment, and Crown Lands. This division of responsibilities implicitly recognizes a broad set of land classifications such as wilderness, ecological reserves, parks, forest lands, private lands and dedicated uses such as hydroelectric reservoirs, mine sites, transportation and utility corridors, and urban areas.

The call for a comprehensive land use plan reflects a desire for a further refinement in the allocation decision-making process. It also reflects a concern by the general public and industry that appropriate areas of public lands be classified as "priority use" for the full range of forest values.

Should the government set a target for land withdrawals from the "working forest" for parks, wilderness, etc.?

The current debate over forest land allocations and uses may have arisen, in part, because present classifications are either too broad or insufficient to meet the array of demands on the resource base. It also suggests a lack of compatibility between resource management goals for each particular use or value.

The proposed introduction of a land use classification system would permit a broad designation of value objectives for each particular site. The land use designations would prescribe the allowable uses (if any) and management objectives in each forest area. It would not, however, resolve conflicts between allowable uses within a classification.

What land use classifications would be adequate for management? How should a management area be defined?

A first-level, general classification of land uses could be developed according to the access to be permitted on the land base. These broad general classifications could then be broken into more defined classifications that contain one or several compatible uses. The management regime will vary for each. The minimum or maximum land classified under each subclassification would reflect overall provincial goals, or the "best use" of the land base, as developed within the guiding principles for land use planning.

Should the land classification change over time? Should land that has both good timber and recreational values be designated as prime recreational land for a period of years until timber is mature, and then as prime timber? This could lead to a system of revolving parks.

An illustrative example of these potential land use classifications is given below to aid discussion.

Protection/Preservation

- ecological reserves
- critical wildlife habitat
- special environmental features (sensitivity or instability)
- archaeological sites
- cultural and spiritual values
- parks
- wilderness areas

Questions and issues to be addressed

Multiple use management areas

- timber harvesting
- tourism
- hunting
- trapping
- guide outfitting
- agriculture/range
- views/landscapes
- special purpose (research, heritage)
- recreation
- urban/forest interface
- fisheries
- estuaries, marsh lands
- watersheds (quality/quantity)
- old growth or special feature forests

Intensive use/Resource processing

- destination resorts
- industrial sites

4. Responsibility for land use planning

The provincial government is ultimately responsible for the stewardship of all lands in the province, either through its ownership or its regulatory powers. Management responsibilities for public lands are conferred by legislation on government ministries, or on industry by contracts such as TFLs.

Management of provincial forest land has been assigned to government ministries on the basis of specific resource values or development interests. Several specific concerns have arisen over this form of management:

- Various resource values have not been appropriately considered in management decisions; timber interests tend to prevail.
- Many management decisions are influenced by urban populations whose interests do not reflect rural or regional concerns.
- Public involvement in how the forest resource is managed, and for what values, has been limited.

Questions and issues to be addressed

A comprehensive land use plan is seen as a mechanism to ensure management plans and actions reflect all forest values. Two distinct methods of developing a land use plan have been identified from the submissions and are discussed below as a "centralized" or a "decentralized" model.

The primary difference in the two models lies in whether the plan is formulated by the provincial government, with land classifications being assigned throughout the province, or whether communities and regions develop their own land use plans within a broad provincial framework of land classifications.

Should land use plans be developed by the provincial government, or should plans be developed at a community or regional level within a broad provincial strategy?

A land use plan formulated at the provincial level would enable the establishment of land classification "shares." For example, parks, ecological reserves and "working forests" could all be assigned a certain percentage of the land base. Allowable activities within classifications would then be consistent across the province.

Alternatively, plans could be developed on a region-by-region basis by community groups. Individual land use classifications could be developed to address particular biogeoclimatic conditions and land uses in an area, thus tailoring the management objectives of each classification to suit local conditions and land use options. There could be general guidelines for minimum or maximum "shares" for classifications developed.

How will public input be received and incorporated into the plan?

In the absence of this, however, the decentralized model yields "shares" as a sum of the parts of the individual regional plans.

Before decisions can be made on plans for individual resource uses or other land use classifications, a choice must be made concerning who will be delegated management authority over the forests. A large number of briefs from the forest industry called for the development of area-based forest tenures such as Resource Management Agreements which would entail contractual agreements for the stewardship of all forest resources.

What organization(s) should be responsible for the formulation and management of the plan?

Other submissions called for a "neutral" Ministry to plan and regulate provincial forest lands and a Crown Corporation to manage them. These proposals were refined in many instances to include the establishment of regional resource boards or committees to determine the appropriate allocation between land classifications at a local level. These options are described in more detail in subsequent chapters.

Who will be accountable for the impact of land use decisions?

Questions and issues to be addressed

It is important to note, however, that the allocation of land use decision-making power should be accompanied by accountability for the decisions made, particularly in light of the substantial impact land use decisions may have on local employment and income opportunities as well as on provincial government revenues.

The following section reviews the options and implications of a decision by the provincial government on whether to introduce a land use plan. The options are illustrative in nature and are intended to cover a range of alternatives rather than providing the specific choices that face planners.

Options and implications

I. Current status

- The Ministry of Forests develops overall harvesting plans for the forests, and works with licensees on harvesting and silviculture plans for specific sites. Other forest values are accommodated in individual five-year management and working plans.
- The provincial parks system continues to be expanded to include representative samples of the 59 distinct landscapes of the province.
- The Federal Government continues to develop a National Parks plan.
- The Ministry of Parks continues to develop its ecological reserve program.

Implications

- Industry pressure to maintain or increase the Allowable Annual Cut results in continued pressure on other resource values.
- In spite of additions to parks and ecological reserves, public concern over the loss of natural values such as old growth forests leads to moratoriums on logging in exceptional ecosystems and untouched watersheds, reducing the timber harvesting land base.
- The lack of a planning framework for the forest industry adds to uncertainty and leads to reduced levels of investments in industrial facilities and silviculture.
- Confrontations over specific forest conflicts are ultimately resolved on a case-by-case basis by Cabinet.
- No overall, compatible management goals for the full range of resource values are explicitly recognized.
- The costs for individuals and corporations in planning forest management continues to be expensive and time-consuming.

- The credibility of the Ministry of Forests, the forest industry and forest workers is likely to remain low.

2. Centralized planning process

- A central planning agency would develop land use classifications to meet a variety of environmental, land and resource use options.
- The development of the provincial parks system and ecological reserves could be accommodated within this framework.
- Fish and wildlife, industry and environmental associations would be consulted concerning appropriate classifications and specific sites of interest.
- "Shares" or management levels would be adopted for all forest resource values.
- Land use classifications would include guidelines as to permissible activities and management options.
- The central agency would assign land classifications throughout the province.
- A time frame for introduction would be adopted.
- Implementation of management of the various land classifications would be undertaken by the appropriate government ministry.
- Cabinet would be involved in approving land use plans and resolving disputes.

Implications

- The centralized planning option would feature a consistent approach to land classification.
- The balance of resource values may be better than what is now currently available.
- Single and multiple resource management objectives could be met through land classifications.
- Unless a large number of classifications are developed, there would be little sensitivity to local conditions.
- The ability to change classifications or vary management priorities within a classification would be limited.
- The level of public input into the planning process would remain low.
- Community stability and regional diversity would be given greater weight than they are currently accorded.

3. Decentralized planning process

- Overall planning goals and strategies would be established for the province.
- The development of the provincial parks system and ecological reserves would be accommodated within this framework.
- Broad area classifications, with detailed subclassifications, would be defined.
- Specific definition and designation of the classifications would be undertaken at a regional or community level. All resource user groups, industry and government resource agencies would participate in developing the regional plan.
- A time frame for introduction would be adopted.
- Cabinet would approve each plan and retain the right to resolve disputes.

Implications

- This process would utilize local knowledge and experience.
- Rural interests would be more fully met than in the centralized option.
- Community stability and regional diversity would become priorities.
- All resource values would receive consideration.
- Flexibility in the definition and use of various classifications would recognize regional and biogeoclimatic diversity.
- Commitment to the plan would be demonstrated at all levels.
- Plans may vary greatly from one area of the province to another.
- Administrative costs may be higher than in the centralized option.
- There may be a lack of accountability for decisions made at the regional level.
- The "time" costs for individual participants may be onerous.

Forest Resource Management

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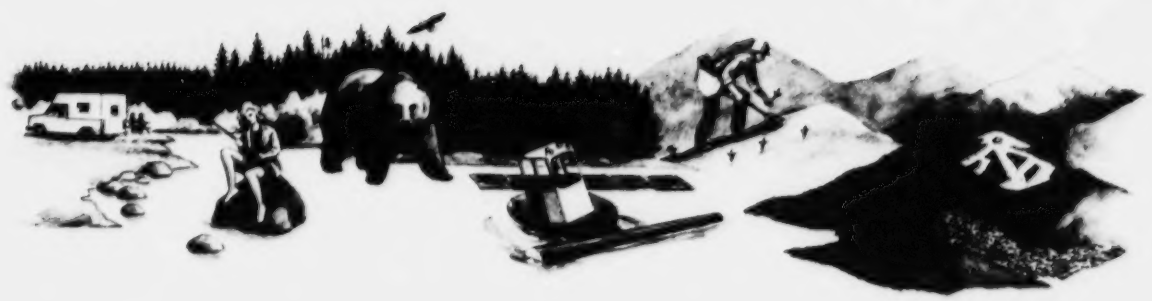


2. Forest Resource Management

Guiding principles

- *manage for all forest values to provide optimal use*
- *resource managers accountable for results*
- *a need to prevent fires and control insects, disease and noxious weeds*
- *management practices must ensure economic and environmental sustainability*
- *a need to reflect regional diversity*
- *a need to reflect biological diversity within biogeoclimatic zones*

Related issues

- *stewardship*
- *community stability*
- *tenure*
- *integrated resource management*
- *even-aged or uneven-aged forest management*
- *forest harvesting practices*
- *financing forest management activities*

Discussion

1. Introduction

The theme of forest resource management relates stewardship of the forests, at the management level, to the objectives of the land use plan. The management of forest resources is incorporated into the Draft Vision Statement: "The forest resources of British Columbia must provide for the social, spiritual, environmental and economic well-being of British Columbians. They must be managed in such a way that these values are maintained for future generations."

A variety of guiding principles for forest resource management have been drawn from the submissions to the Commission. These are:

- the principle of managing to protect and enhance the full range of forest values
- the need to inventory all forest values
- the need to prevent fires and control insects, noxious weeds and disease
- the need to reflect biological diversity within biogeoclimatic zones
- the need to reflect regional diversity

Questions and issues to be addressed

Other guiding principles include:

- managing for economic and environmental sustainability
- optimizing the use of forest resources
- holding forest resource managers accountable for their actions

2. Stewardship

The Ministry of Forests is responsible for management of Provincial Forests, and has a mandate for integrated resource management that is described in Section 4(c) of the Ministry of Forests Act:

> ***"Plan the use of the forest and range resources of the Crown, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are co-ordinated and integrated, in consultation and co-operation with other ministries and agencies of the Crown and with the private sector."***

Through a set of protocol agreements with other resource ministries, the Ministry seeks to ensure all resource values are considered in planning.

Basic management planning by the Ministry occurs at the Timber Supply Area (TSA) level. The Ministry is also responsible for approving plans for TFLs and woodlots. Periodically, management "options papers" for TSAs are developed and circulated to respective user groups and the general public for comments and input to the planning process.

Five general concerns about this forest management regime were consistently raised in submissions to the Commission:

- forests are being managed primarily for timber values at the expense of other forest values
- present harvest levels are not sustainable
- the principle of practising even-aged management is inconsistent with managing for other forest values and retaining biodiversity in forest systems
- the opportunity for effective public input into the planning process is limited
- forest practices on private lands are generally unregulated

The ability of the Forest Service to fulfil a stewardship role was often questioned due to financial limitations imposed by the annual budget process. In addition, a lack of will to either penalize poor forest practices or reward good forest management was noted.

The adequacy of staffing levels and the allocation of Forest Service personnel between office and field work were also questioned. Concern was voiced over inadequate funding for inventories of land use activities and for research on management alternatives.

These deficiencies in resource allocation for all values led to proposals for a "neutral" resource ministry that would regulate forest uses and a separate Crown corporation to manage the forests.

The development of regional resource boards or committees was proposed to improve control over resources management at a local level and to provide a detailed knowledge of local forest values.

The guiding principles of sustainability and of optimizing the use of the forest resources require decisions about the intensity of forest resource management. The silvicultural practices brought to bear with a new forest crop will affect the timing of the next harvest, as well as the quality and value of the wood products over the next rotation.

It is present policy that all harvested provincial forest lands must be reforested. Intensive management can also be brought to bear to enhance non-timber values.

Some submissions stated that investment on replanting, brushing, thinning and spacing would not provide an economic return in the present climate of instability of tenure. Others stated it was possible to increase the eventual sustainable harvest, even on a reduced forest land base, by intensive silvicultural practices.

Increasing the yield from a smaller commercial forest land base through intensive forestry provides options for a greater variety of uses and values on lands than would otherwise be required to sustain the AAC.

Intensive management of the forest for many forest values has not occurred, in part, because of a lack of a market price or economic valuation. For instance, it was noted that hunting, fishing and/or guiding can provide continual annual income based on forest land activity. However, management of fish and wildlife to enhance commercial income has been limited by government policy.

Questions and issues to be addressed

Should current government ministries be restructured in order to create a "neutral" resource ministry responsible for overseeing all forest practices?

Should management and funding of the forests be removed from the Ministry of Forests and government's annual budget considerations? If so, should they be placed under the control of a Crown corporation which is not subject to annual budgetary fluctuations?

Should decisions on forest resource use allocations be made on a more localized level? If local boards were created, who should be represented on such boards? How should they be made accountable?

Should Allowable Annual Cuts be calculated from small timber supply units? What is the optimal size for a timber supply unit?

Which forest resources should be managed intensively? To what level should they be managed? Who should bear the management cost?

Questions and issues to be addressed

Lack of secure long-term tenure or the right to realize the benefits of investment in intensive management has limited the potential development of many forest values and uses.

3. Community stability

Are forest tenures and land classifications appropriate mechanisms to ensure community stability?

The implications of forest land management for community stability were raised in conjunction with ensuring harvesting levels are tied to, and can sustain, employment in rural communities.

Briefs from rural communities stressed that the diversity and economic base of a community should not be threatened by the classification of forests in a manner that eliminates the viability of logging and processing operations. The main suggestions to maintain stability related to:

Should timber be designated as assigned to particular communities, or should it be free to flow to areas of greater need?

- the establishment of community forests
- harvesting quotas for community mills
- restrictions on the movement of logs between forest districts
- ending large-scale withdrawals of forests from logging activity
- log exports

Others noted that the large size of administrative areas for determining the allowable cut could lead to over-cutting specific areas within the region.

The counter argument to calculating the AAC on a smaller land base is that the risk from natural fire, disease and pests cannot be predicted, thus stability is threatened.

Community stability is also dependent upon other values of the forests, including grazing, recreation and other commercial activities such as resorts. These values can be affected by the physical and visual impact of logging as well as by the effects of associated practices such as slashburning.

4. Tenure

Tenure is a term used in forest land management to define a right of access and use of the forest resources. Different types of tenure have been developed by the provincial government to transfer stewardship of the resource to private or community management.

Questions and issues to be addressed

A variety of tenures can be allocated on a single area of forest land. For instance, water licences, mineral rights, trapping licences, grazing permits and timber harvesting licences can all be allocated concurrently to different resource users on the same piece of land. Alternatively, a park designation (tenure) will curb all but a few management and use activities.

Forest harvesting tenures received the highest level of attention in submissions, largely due to concern over their impact on other forest values, and because forest tenures transfer certain rights and obligations of stewardship from the government to private management.

(The primary types of forest harvesting tenures and the respective rights and obligations of the tenure holders are described in Appendix III.)

Some submissions to the Commission stated that a recurring quota of harvesting rights is necessary for the forest industry to invest in, and maintain, processing facilities. This relates to the security thought to be required to obtain financing. These submissions also maintained that long-term, area-based tenures were necessary to ensure a commitment to intensive forest management, including investment in intensive silviculture.

Should replacement of existing forest tenures be tied to demonstrated forest stewardship, or should replacement be based on the ability of the licence holder to harvest timber within regulated bounds?

The perceived security of existing tenures has been reduced by the reallocation of cutting rights to the small business program, reallocation of land to parks, and the lack of resolution of native land claims.

Other submissions pointed to the fact that investments in industrial plants occur, to some extent, in other countries without the need for long-term tenure, as long as access to wood is assured.

It was felt by many that management of the forests should not be the responsibility of one particular user, and that forest tenures should be separated from forest product manufacturing.

Forest Management Agreements would be an alternative to area-based tenures. These agreements would feature a contractual requirement to manage for all values in the forest, with annual independent audits of performance. The audit would be used to determine if the licensees should be rewarded or penalized, or the licence cancelled.

Should licence holders be subject to an annual external audit to determine if they have carried out the functions they are licensed to perform, or should it be left to the government to monitor licensees' performance? Who should audit the performance of the Ministry of Forests? Should the audits be made public?

Questions and issues to be addressed

Another issue in the discussion on forest tenures was the degree to which ownership of forest harvesting rights in the province is concentrated in relatively few hands. Many submissions felt management of the forests had been transferred to corporations headquartered outside British Columbia or in other countries. It was questioned whether the objectives of these corporations in the forests of British Columbia would reflect the social and economic interests of the province or local communities.

Should a broader range of tenure control be encouraged through small, transferable area-based tenures?

Submissions proposed that community-owned tenures, smaller area-based tenures and woodlots would provide more security to communities as the resources would be locally controlled. This local control, it was argued, would ensure forest resources would be managed for both environmental and economic sustainability.

Should forest tenure be separated from the ownership of production facilities?

Proposals to reduce control by a few companies over forest management included:

- expansion of the woodlot program (10 per cent - 30 per cent of AAC)
- development of a large number of small area-based tenures (25 per cent - 50 per cent of the AAC).

This approach was advocated as a way to develop a competitive log market and to develop a better understanding of forest management.

A final issue on tenure concerned its sale or transfer. The Minister of Forests has the right to refuse the transfer of tenures upon the sale of a corporation. With a few notable exceptions, this right has not been exercised.

Of particular concern with regard to increased corporate concentration is the closure of manufacturing facilities and the transfer of cutting rights to another manufacturing plant.

Should licences be transferable or saleable?

There is also concern that since tenures were never allocated through the competitive bidding process, the Crown does not receive fair market value when the licence is transferred from one owner to the next.

It was suggested that when cutting rights are subject to transfer, the licence be allocated through competitive bidding, with the Crown retaining any windfall profit. The licensee selling the licence would retain ownership to any improvements made with his own resources.

Questions and issues to be addressed

Other suggestions centred on the lack of private ownership of forest land in the province. With only four per cent of the forest land in private hands, the lack of incentive to manage the land for the long term is apparent. It was pointed out that investments on private forest lands are four times greater than on public land.

Suggestions were made to greatly expand either the ownership of forest land or ownership of the timber crop on the land. This, according to the briefs, would increase the level of management over a greater percentage of the forests.

The immediate concern in the sale of harvesting rights lies in community stability as mills are purchased for their harvesting quota and subsequently closed down. Efficiency and growth are weighed against economic loss in another community. Options to limit this activity include:

- not allowing the sale of a quota
- having public sales, with the quota going to the highest bidder
- permitting only a portion of the quota to be transferred, thereby "freeing up" forest quota for reallocation or withdrawal from the annual harvest

5. Integrated resource management

A comprehensive land use plan leads directly to an integrated resource management plan. The inventory of all resource values is fundamental to both a comprehensive land use plan and integrated resource management.

Integrated resource management provides recognition of the full range of forest values. Individual resource goals and values can be considered in terms of the array of complementary or competing uses within an area, over time. Separate land classifications for individual or complementary values can then be "pieced together" to provide a mosaic of integrated resource uses.

Should the forest licensee be held responsible for managing all resources within the licence area?

Presently, the Forest Service manages for timber, forage and recreation. Other resource ministries and resource users are consulted to provide a balance to management.

However, submissions noted that timber values dominated forest resource planning. An equitable role in the planning process for all forest values on forest lands was advocated through land use classification.

Questions and issues to be addressed

6. Even-aged or uneven-aged forest management

The purpose of forest land management for timber is to obtain a continuous or even flow yield of wood fibre from the forests. This can be accomplished by either an even-aged or an uneven-aged management option. Each has its own advantages and risks.

The province has, since the first Royal Commission on Forestry in 1910, based its management strategies on creating even-aged forest stands. This philosophy was questioned by some submissions, but others noted that the biology of many species requires they be managed on an even-aged basis. The question of maintaining old growth forests, which was raised in numerous submissions, must be considered when discussing even-aged management. Old growth can be maintained under this system, provided the rotation age used in determining the annual cut is sufficiently long.

An even-aged forest is one in which individual trees originated at about the same time. It is managed with the goal of harvesting the stand at planned intervals, followed by reforestation. The clearcutting of forests is said to be less costly and safer for forest workers. It is useful in eliminating certain diseases or such parasitic plants as mistletoe. The impact of clearcutting on soils and other resource values is a concern, however.

Should uneven-aged management be a goal?

An uneven-aged forest stand is one in which trees originated at different times. The forest is composed of very young to very old trees. The age-size distribution is unregulated. It is harvested repeatedly, without elimination of the forest cover. A multi-storied canopy is retained, as is the ecosystem. Selection cutting of the forest can be used to improve the quality of the stand by allowing the remaining trees more nutrients, more light and room to grow. It can work well on sites in the dry southern interior but may be inappropriate for many coastal sites.

Should forests be managed to maintain their biological characteristics?

In a stand of over-mature trees on a steep grade, there may be too many snags and blowdowns for safe selection cutting. Large trees, when falling and rolling, may damage others, and the resulting wounds to stem and foliage may be attacked by disease fungi.

In the course of a rotation, moreover, a stand may be entered three or more times for selection harvesting, meaning roads must be kept active for a longer period of time. Cable harvesting systems are the preferred harvesting method on steep slopes because such systems cause the least soil disturbance and danger to workers, but applied to selection cutting, they can be very difficult and costly.

Questions and issues to be addressed

The practice of selection harvesting has also led to "high grading" the forest and a loss of forest quality. Selection cutting is not suitable for all forest types and terrains.

7. Forest harvesting practices

The topic of major interest in submissions on forest harvesting was whether present practices are ecologically sound and sustainable. The guiding principles of sustainability and the need to be sensitive to the environment and to biological diversity within biogeoclimatic zones were derived from these submissions.

Specific harvesting practices were questioned in many submissions. Clearcutting was a particularly controversial topic. Some submissions claimed it "destroys the environment" and should be banned; others called for the end of large clearcuts.

The counter argument was made that when practised correctly, clearcutting is an ecologically sound and sustainable method of timber harvesting for appropriate species on appropriate soils. It was noted that it is the major timber harvesting system used around the world and is widely used in Scandinavia, elsewhere in Europe, the USA and the Communist bloc. In Sweden, there is now a legal requirement to clearcut forests, based on 50 years' poor experience in selection logging.

Advocates of clearcutting said that experience demonstrated alternative harvesting systems resulted in a reduction in many of the values of the forest ecosystem. However, other harvesting systems are used, or should be used, where appropriate, such as on dry sites or in hot, dry climates, on steep unstable slopes, in protection forests, on recreationally-important, visually-sensitive landscapes and in some sub-alpine forests.

A major problem of clearcutting in British Columbia has been a frequent insensitivity toward the aesthetic aspects of clearcut harvesting. Frequently, the most serious and persistent examples of visual damage associated with timber harvesting have been caused by road building. Poorly-constructed roads were also cited as a contributing factor to slope instability and damage to water quality through stream siltation.

Is clearcutting an ecologically-sound harvesting practice? Should the use of clearcuts be further regulated in respect to their size? Should other systems be introduced regardless of their silvicultural, economic and worker safety implications?

It was noted, however, that alternatives to clearcutting usually required a much greater length of road and more frequent access to the forest.

Questions and issues to be addressed

Is slashburning an acceptable treatment? Are there viable alternatives?

Slashburning of logging residues was heavily criticised in some submissions. It was said that slashburning damaged the soil and destroyed nutrients, that smoke from slashburning contributed to respiratory problems, and that burns often escaped through lack of planning and supervision, destroying standing timber and other resources. In other submissions it was argued that broadcast burning was necessary to prevent wildfires and to prepare the site for a future crop and that burns were designed to minimize the impact on the site and could be planned to burn only what was necessary.

Some briefs discussed the contribution of carbon dioxide emissions from slashburning to the greenhouse effect. Others pointed out that productive, sustainable timber management producing long-lived wood products is part of the "greenhouse solution." Exploitive forestry that damages soil productivity, or forestry that reduces the storage of carbon in the ecosite can be a part of the "greenhouse problem."

However, compared with tropical deforestation, global fossil fuel use and global cement production, the net contribution of British Columbia forestry practices to the "greenhouse problem," either positive or negative, will be very small.

The use of herbicides and insecticides in brush and infestation control was criticized in some submissions. It was argued that chemicals contributed to habitat and wildlife loss and could enter downstream water supplies and fisheries. Some said infestations being treated with chemicals were often the result of human disruption of a biological balance.

Manual brushing, girdling and grazing by sheep and/or cattle were suggested as alternative ways of curbing plants and brush competing with conifer seedlings.

The counter argument was made that:

- herbicides and insecticides presently licensed for use in British Columbia did not affect the health of people or the environment when properly applied
- the province did not have the huge number of cattle and sheep needed for unaided controlling of brush
- manual brushing is expensive and a herbicide treatment is normally the cheapest form of silviculture for increasing yield

A rather different perspective on fibre utilization emerged in briefs speaking of harvesting waste which perpetuated the myth of super-abundance. It was said that the large volume of wood left to rot after harvesting meant that companies had to cover a wider area to realize their allowable cuts.

Other submissions claimed the use of waste surveys, together with scaling of timber, prevented companies from over-cutting. It was also suggested that improved access to logging residues could provide income for salvage operators.

The question of utilization versus site productivity was discussed in some submissions. It was noted that if utilization is too intensive, site fertility and tree growth can be reduced significantly.

The subject of biodiversity versus monoculture was raised in some submissions. Such submissions indicated a concern that present harvesting and reforestation practices do not reflect the biodiversity of the forests and that planting only one species on the site is not sound.

Yet others spoke of the 13 different biogeoclimatic zones of the province. They indicated that some forest types are naturally limited to single species. It was said that many individuals took their local knowledge and extrapolated it to the entire province.

8. Financing forest management

Many submissions spoke to the concern that the Forest Service was unable to manage the forest properly due to a shortage of funds and uncertainty over the long-term level of annual budget appropriations. It was suggested that the asset base of the forest was being drawn down by income earned from forestry operations entering the general revenue of the government rather than being used to rehabilitate, maintain, or improve the forests.

One suggestion to ensure continuous financing for forest management was to return a portion of the stumpage to the community where harvesting had occurred.

Another suggestion was to develop a separate Crown Corporation. Such a corporation could raise money on capital markets, collect stumpage, manage the forests and pay a dividend to government after reforestation and silvicultural expenditures had been incurred.

Questions and issues to be addressed

It was felt that the long-term nature of the forest resource cycle could not be properly met by annual budget appropriations that, historically, have been severely cut during periods of weak economic performance.

Current annual investments in silviculture are over $250 million. However, very little strategic fibre-flow analysis or silvicultural management-related planning opportunities has taken place in British Columbia.

The harvest from a forest is significantly impacted by the silvicultural management strategies applied. Careful analysis is needed to determine the impact of today's harvest and the spectrum of "end-product" opportunities available from current activities.

Hence, a Crown Corporation could also use the forest asset base to borrow funds in years of low income or low stumpage rates. The important principle would be to maintain the entire forest capital base.

Options and implications

A. Government role

1. Current status

- Ministries retain present authority.
- Ministry of Forests responsible for forestry, range, recreation, timber inventory, protection, forest research, timber valuation, wildlife habitat.
- Ministry of Environment responsible for fish and wildlife populations, water licensing, wildlife inventories, etc.
- Budgeting responsive to government revenues.

Implications

- Ministry of Forests has responsibility but does not have the authority or financial resources to manage to the high standards expected.
- Investment in intensive silviculture remains low.
- Management for various forest values remains fragmented.
- Lack of appropriate inventory data hampers planning; public confidence in harvest levels remains low.

2. Development of a new Forest Resources Act

- A new Act which ties together the forest-related mandates of the present government ministries would be introduced.
- All ministries would work within the Act's framework, but would not merge.
- An independent Secretariat that establishes rates of timber harvests and management goals for other forest values would be created.
- The Secretariat would provide funding authority for research into forest management issues (ecological and economic).
- The Act would provide for dispute resolution and arbitration in determining land use allocation.
- The Act would establish support mechanisms to ensure reforestation and proper forest management on private lands.
- A "system of accounts" would be introduced to monitor resource depletion or additions to forest capital "assets."

Implications

- All forest values would be accorded equitable representation in management planning.
- Independence in setting harvest levels and silvicultural requirements would be ensured.
- Existing forest-related staff in government ministries would be given authority to ensure management objectives for all forest values were being met.
- Budgeting would remain subject to annual fluctuations.
- Forest Management Agreements and Forest Service land management would be audited by the Secretariat.
- An independent source of forest-related information and research would be established.
- An accurate appraisal of resource values, through an audit, would ensure sustainability.

3. Creation of a Forest Resources Ministry and an independent corporation

- Ministry would be responsible for setting provincial goals for all resources.
- Ministry would be responsible for conducting or co-ordinating all natural resource inventories.
- Ministry would be responsible for non-commercial forest areas.

- Ministry would be responsible for establishing valuation practices.
- Ministry would be responsible for forest research.
- Forest Crown Corporation would be responsible for maintaining natural resource capital base.
- Forest Crown Corporation would be responsible for financing and managing the commercial forest.
- A "system of accounts" could be introduced to monitor resource depletion or additions to all forest values.

Implications

- Forest management would be separated from regulation and enforcement.
- No single resource value would have primacy in management.
- Long-term planning and continuity of management would be introduced through separation of financing from annual government budgets.
- Resource management costs would be recovered from companies through resource pricing.
- Government flexibility in resource allocation decisions would be reduced.
- Funds flowing to government from resource use and extraction would probably be reduced, at least in the short run, as more funds are reinvested in the forests.
- An accurate appraisal of resource values through a "system of accounts" would ensure sustainability.

B. Tenure

1. Current status

- Retention of existing forms of tenure.
- Existing TSA and TFL forest land allocation retained.
- Tenure holders responsible to protect other resources but have no active management responsibilities over them.

Implications

- Continued uncertainty over investment in processing facilities and minimum investment in (intensive) silviculture.
- Sawlog shortages increase because, among other reasons, supply from private lands dwindles.

- Increased corporate concentration as companies merge to obtain cutting rights.
- Communities destabilized because of mill closures.
- Expansion potential of small specialty product mills is curtailed by log shortages.
- No rewards for good management practices or penalties for poor management practices.
- Other resource values are managed by default.
- Insecurity of tenure continues due to withdrawals from the economic forest base for other resource uses.

2. Expand TFLs

- Existing forest licence holders would be permitted to "roll over" their volume-based quotas into area-based TFLs.

Implications

- Public resistance to size of tenures would continue.
- Security of tenure would not increase.
- Resource stewardship role would not increase.
- Ease of entry into the industry by new companies would be restrained.
- Understanding, or inventory, of other forest resource values would not improve.
- Incentive for better forest management practices, due to direct identification of specific areas with corporate ownership, would be greater.
- Flexibility to meet unforeseen resource use interests would be reduced.

3. Add Forest Management Agreements to Tree Farm Licences

- TFL requirements would be expanded to include managing for all forest values by way of a Forest Management Agreement.
- User fees could be introduced.
- Independent audits could ensure compliance and be used to reward good stewardship practices.

Implications

- The expertise of the existing land manager would be brought to bear on other forest values within the harvesting areas.
- Revenues to government may decline as a result of extra management.
- Control over resource management decisions (by government) would be lowered.
- Actual management levels would improve over current status.
- Changes for resource uses, other than timber, could be introduced in an efficient manner.
- Present resource stewardship role would not increase.
- Ease of entry into the industry by new companies would be restrained.
- Understanding of inventories of other forest resource values would be improved.
- Incentives for better forest management practices, due to direct identification of specific areas with corporate ownership, would be greater.
- Flexibility to meet unforeseen resource use interests would be reduced.

4. Gradual conversion to a larger number of smaller area-based tenure agreements with Resource Management Agreements

- Present Tree Farm Licensees would keep their area-based quotas, providing they meet contractual requirements.
- New entrants (e.g., Forest Licence rollovers) would be licensed with smaller areas and lower initial cut levels.
- Communities and individuals would be permitted to propose and/or bid on licences.
- New area-based agreements would allocate responsibility for managing all other resources to the licensee through contract.
- Tenure would be long term, revokable due to poor forestry practices or lack of management for all resource values.
- Tenure holders would retain any increase in timber volumes and values or other resource value gains.
- Conversion to new tenures would be carried out over a 20-year time frame, as present licences come up for renewal.
- Manufacturing facilities would be optional.

Implications

- Diversity of forest management practices would increase.
- Community investment and employment opportunities would be stabilized.
- Diversity of resource value priorities would increase.
- A competitive log market would develop.
- Government revenues could increase.
- An audit would be required to assess performance.
- Present tenure holders might launch legal challenges.

5. Rapid conversion to a large number of small area-based agreements

- All present tenure holders' licences would be cancelled.
- New licences would be put up for bid.
- Licences would be area-based, but could not be sold, transferred or amalgamated.
- Same conditions would apply to retaining new licence as in gradual conversion process.

Implications

- Forest Act would be overhauled.
- Investment would be disrupted.
- Government might experience lack of public confidence.
- Community destabilization could occur because of uncertainty in wood supply.
- Allocation of tenure to small mills would increase their access to financing.
- Financial stability in international markets would be reduced (investment and product markets).
- Present tenure holders might launch legal challenges.

C. Timber harvesting

1. Current status

- Natural forests continue to be the prime source of fibre for processing facilities.
- Clearcutting remains the primary method of timber harvesting.
- An even-aged managed forest remains the management goal for the forests.

Implications

- The range of age classifications in the commercial forests becomes more evenly distributed.
- The diversity of species may be altered.
- The economic efficiency of harvesting is primary, above other forest values.
- In the absence of intensive silviculture, a provincial falldown in harvest levels will occur.

2. Selection logging

- Natural forests would be selectively logged, where possible.
- Other forests would be left unlogged.

Implications

- Other forest values, such as tourism, would be improved.
- There would be large reductions in the annual harvest levels.
- Logging costs would increase.
- The level of forest worker safety would be reduced.
- Individual stem quality could improve.
- Road requirements would increase, with consequent impacts on wilderness and wildlife values.
- The diversity of species would be altered.
- Slashburning and the use of herbicides would be greatly reduced.
- Fire and insect risk would increase.

3. Increased ecological sensitivity

- The extent and nature of harvesting would be determined on a site-by-site basis.
- A wider range of forest values would be considered in decisions over whether or not to harvest, and the method of harvesting.

Implications

- Timber harvesting land base would be reduced.
- Values other than timber may be considered primary; the harvesting method complements other resource management goals.
- Loss of forest land, because of unsuitable harvesting methods, would be reduced.
- Diversity of species change would be reduced.
- Harvesting costs could increase.

D. Community stability

1. Current status

- Few community-controlled forests.
- Harvesting levels planned at a regional level may have greater relative impact on small communities.
- Limited community voice in forest planning for values such as water quality, tourism and recreation.
- Declining relationship between timber harvesting and the location of processing facilities.
- Decisions to withdraw forests from harvesting may reduce economic diversity and employment in local communities.

Implications

- A free flow of timber between communities ensures the economic vitality of the harvesting and processing industries at a provincial level.
- Individual communities may lose part of their economic base, while others remain competitive.
- Corporate concentration increases as mills are purchased for their harvesting rights.

2. More Community Control

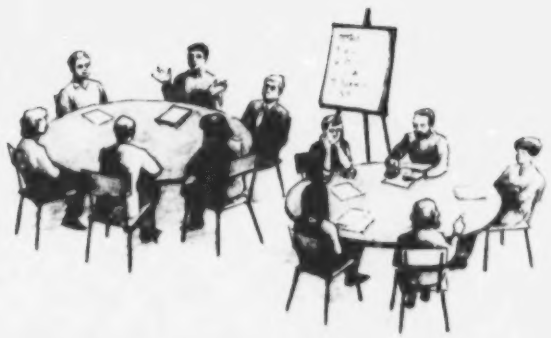
- Community-controlled tenures, small area-based tenures and local woodlots would be encouraged.
- Transfer or sale of tenures would be restricted or eliminated.
- Flow of logs between districts would be restricted or eliminated.

Implications

- Restrictions on transfer or sale of harvesting rights (tenures) would reduce corporate concentration and closure of local mills.
- Restrictions on flow of logs between regions would reduce economic vitality of the forest industry.
- Community tenure could be a means to encourage local investment and employment.
- Communities could manage their tenures for other values such as water quality or recreation.

Public Involvement

3



Questions and issues to be addressed

3. Public Involvement

Guiding principles
- *the public must be involved in all stages of forest planning and management*

Related issues
- *the planning process*
- *community involvement*

Discussion

1. The planning process

Should greater public involvement in forest land planning and management be encouraged?

Throughout the submissions to the Commission, there was concern expressed that the public is not given sufficient opportunity to either assist in developing forest management plans or to make decisions on forest land use allocations. A frustration was voiced that the values and objectives of forest managers do not reflect those held at either a community level or throughout the province generally.

All participants in the debate objected to the present uncertainty in long-term planning for forests.

In rural areas, there was a concern that decisions made in Victoria or Vancouver would have negative implications for income and employment opportunities, and on a preferred quality of life. It was suggested that such decisions could go so far as to negatively impact the stability of a given community. The knowledge of the land and the concerns of local communities were felt to be either bypassed or wasted, as planning and control were vested elsewhere.

Basic concern over lack of stewardship in the forests led to calls for the public to be consulted at all planning stages. It was noted that present opportunities for involvement came too late in the planning process. It was often noted, however, that ample opportunity is available to the public to comment on forest plans, but opportunities were either ignored or not generally understood.

Questions and issues to be addressed

Planning by the Ministry of Forests is carried out at five levels:

- provincial policies
- regional goals
- management planning (for TSAs and TFLs)
- local resource use planning
- resource development planning

Public input is requested at two principal stages in the planning process:

- review of the TSA Options Reports
- review of corporate management and working plans for all major tenure holders and TFLs

Should public participation in a structured and predictable system of forest resource planning be introduced by legislation?

There was general concern voiced in submissions over the lack of a structured and predictable role for the public in the development of forest management plans, as well as the absence of an effective say in decisions made concerning the allocations of forest resources in general.

Should public participation be:
• informative (where the public is simply informed of a plan or management proposal);
• co-operative (where the public has some input into the process); or
• controlling (where the public participates in actual decision-making)?
Are there instances where one or another of the above should be used?

Establishment of a mechanism for public involvement in the planning process is seen as necessary if plans are to incorporate changing public values. A public involvement process would also act to ensure that all of the potential impacts of individual land use decisions are fully accounted for.

The range of forest user interests represented in the present planning process was seen by many as being too narrow. The TSA Steering Committees, for example, have representatives of the Ministry of Forests, the Fish and Wildlife Branch of the Ministry of Environment, and the forest licensees (companies). Other public resource users and forest values are not directly represented in the development of options.

Public involvement prior to the development of options by planners was seen as necessary to remove a timber resource bias, and to ensure that other forest values are fairly considered.

Would expansion of the present TSA Steering Committees to include other forest user groups, environmental organizations and community representation provide an adequate forum for public involvement?

Recommendations included the expansion of representation on the TSA Steering Committees to include other resource user groups such as ranchers, trappers and guides, or community representatives such as members of local government.

(An interim recommendation has been made to government on TSA Steering Committees — please see Appendix II.)

Questions and issues to be addressed

Alternatives to existing planning processes were also proposed. Regional or community forest resource boards were seen as fulfilling a need for a non-aligned, broadly-based forum for the discussion of community interests. Options for representation on these boards included combinations of affected user groups, industry associations, elected representatives, or commissions with staff that could play a role as advisors or mediators in local resource use conflicts.

Should permanent community or regional resource boards be established to ensure all public interests are met in the forest planning process?

The regional boards were also seen as playing an important role in developing land use plans.

A consideration in the development of regional resource boards is the availability of necessary forest resource management expertise to assist in resolving local issues within a provincial policy context. It was suggested that recommendations made by regional resource boards on land use classifications or resource allocations would need to be approved by Cabinet in order to ensure compatibility with other provincial resource management goals.

Should community or regional resource boards be established to act as a mediator in forest land use conflicts?

2. Community involvement

Community-level involvement in local land use planning and forest management was viewed as a method of obtaining informed public input. The present process was seen as time-consuming and expensive for private individuals.

The integration of community resource boards into the planning process was proposed by way of representation on the TSA Steering Committees or through their involvement in land use planning.

An initial stage of public involvement lies in the use of local knowledge to determine the appropriate designations of land use classifications in the region. Individuals working within a specific area or possessing specific resource expertise were seen as being able to identify special values or sensitivities.

The management approach and objectives within the land use classifications will require decisions on resource allocation and trade-offs between user groups. Forest land management decisions can be made at a local level with public input on the design of land use classifications.

Questions and issues to be addressed

Should public participation be limited to advice, or should there be local decision-making?

Who should be the final arbiter of an unresolved dispute:
- *the courts?*
- *Cabinet?*
- *a forest ombudsman?*

How much time should be allocated to the dispute resolution process?

Should there be independent public audits of forest processes?

These classifications could be designed in such a way as to establish compatible land use activities and management objectives. The provision for public input into the forest land use management process entails decision-making authority at the community level. There would be a requirement for standard dispute settlement mechanisms and accountability for decisions made. If decisions cannot be made or agreed upon at a local level, there is recourse to Cabinet authority.

Public input can also be obtained through monitoring or auditing of the success of the planning process, and of individual resource users, in meeting management objectives.

It was also proposed in submissions that Forest Management Agreements be developed with tenure holders, specifying in a contractual form the management objectives for all forest values. Performance audits would be used to confirm whether the goals and objectives outlined in the agreements were being attained. Public disclosure of these audits would then ensure that there has been public input at all levels of planning and management.

It was felt by many that a more informed level of public involvement was needed. This led to proposals to improve the public school curriculum and to develop a "neutral" agency to provide technical information and advice. It was also felt that public awareness of forestry could be increased through hands-on exposure in private woodlots or community forests. An expansion of extension services by the Forest Service was seen as necessary to support this option.

A great concern was noted in rural communities that urban communities have neither an adequate understanding of forestry management practices, nor a clear understanding of the impact of environmentally-driven proposals on small communities. Expanded education services and the provision of independent analysis of forestry practices and options were seen as necessary to resolve this issue.

Options and implications

1. Current status

- The Forest Service continues to address public interests through the public review of TSA Options Reports and Corporate Management and Working Plans.

- Public hearings are only required for new TFLs and Pulpwood Agreements.
- Forest Service employees seek the opinion of resource users outside the formal process, but retain decision-making powers.
- Specific resource use conflicts are either referred to ad hoc committees for review or to Cabinet for decisions.

Implications

- Planning of forest resource use will continue to reflect a timber harvesting bias.
- Individual timber harvesting plans may be challenged by other resource users whose interests have not been met.
- There will be no consistent basis for confirming that all values of the forests are being managed for or represented equitably in decision-making.
- Lack of public confidence will continue.

2. Expansion of representation on TSA Steering Committees

- The use of existing government and corporate expertise would be retained, but representation on committees would be expanded to include user groups such as trappers, guides, ranchers and resort owners.

Implications

- This option would increase the variety of input to the TSA planning process, with decision-making authority being retained by the Ministry of Forests.
- Environmental or conservation groups would not be included as forest "users" in planning.
- There would be little improvement in public understanding of the forest management process.
- Decisions taken at a TSA level might not fully consider the impact on small communities.
- Overall public awareness of the public input process would be improved.

3. Establishment of regional forest resource management committees or boards

- Representation on committees would include the full range of resource user groups including tenure holders, recreational interests, local government officials or elected representatives, and other expertise as required.
- Local and regional expertise would be used in identifying specific resource values and land use classifications.
- Resource committees would determine management procedures and goals for the various resource uses in the individual land classifications.
- Audits of resource managers' performance would be made public.

Implications

- This would provide a local forum for reviewing options and ensuring that management of the full range of forest values is considered.
- It could be structured as a "resource base" for information compilation, data dissemination and access to resource specialists.
- The diversity of forest resource management expertise might not be available on a local level; this process might be very time-consuming for certain individuals.
- Regional forest resource boards might develop into another level of bureaucracy.
- The boards could serve as a forum for dispute settlement or a mediation centre.
- It would provide continuity in planning, implementation and monitoring of plans and agreements.
- Boards would be responsive to changes in public values.
- Cabinet approval of regional plans would ensure the "sum of the parts" meets provincial management goals.
- Cabinet approval of regional decisions would ensure commitment to plans at all levels.

Economics

4

4. Economics

Guiding principles
- *optimize return on all forest values*
- *maintain forest capital base (sustainability)*

Related issues
- *economic importance*
- *economic/industrial strategy*
- *employment/economic development*
- *value-added manufacturing*
- *tenure*
- *fibre exports*

"Two things are therefore plain; one, that the value of standing timber in British Columbia is destined to rise to heights that general opinion would consider incredible today; the other, that under careful management heavy taxation need never fall upon the population of the Province.

"The profits from a permanent Crown timber business should make British Columbia that phenomenon of state craft and good fortune — a country of 'semi-independent means'."

Final Report of the Royal Commission of Inquiry on Timber and Forestry 1909 - 1910; F.J. Fulton, Chairman

Discussion

1. Economic importance

The forest resources of British Columbia have long been regarded as a potential source of wealth and social well-being. As opposed to what happened in other forest-based countries, this potential was recognized early in the development of the province, and ownership of the forest lands was retained by the government.

The allocation of rights to the full public use and enjoyment of Crown lands has been retained, while the economic returns from extraction of resources have been used to encourage industrial development, regional development and community stability. They have also been used to fund roads and highways and such social programs as health care and education.

Questions and issues to be addressed

Today, the forest industry remains the major source of economic wealth and development for the province. Many communities remain solely dependent on the forests for their livelihood.

The forest industry directly employed 100,000 people in 1989. Analysis conducted for the Commission by the provincial government's central Statistics Bureau estimated that the forest industries are responsible for 18 per cent of total employment (243,000 person years), and 24 per cent of the total Gross Domestic Product ($14.3 billion) in the province.

These estimates represent the direct, indirect and induced impacts of forest industry activities. The tax contribution of the British Columbia forest industry and its employees to all levels of government was estimated to be $2.8 billion in 1988 (Price Waterhouse).

Information on the impact of other forest-related activities on the provincial economy is very limited. However, a range of estimates has been developed for the Commission in order to give a context for discussions.

The commercial tourism sector accounts for an estimated six per cent of GDP (1988). In terms of direct employment, the sector accounts for 88,400 jobs, compared to 89,000 in the forestry sector in the same year (1988).

Is tourism likely to overtake forestry as the major contributor to the province's economic wealth in the foreseeable future?

In their survey of employment, payroll and hours worked, Statistics Canada estimate that in 1989, average annual earnings in the tourist sector were $11,300 compared with $37,800 in the forest sector.

The actual amount of tourism and recreation dependent on the forest land base has been variously estimated at between 9.5 and 21 per cent, or expressed in terms of GDP, at between 0.5 and 1.2 per cent.

The cattle ranching sector is another important user of provincial land. Of the approximately 10 million hectares of range land in British Columbia, almost 85 per cent is Crown range administered by the Ministry of Forests. Most Crown range is located within provincial forest boundaries and managed in a multiple-use context.

Crown range provides in the order of 924,000 animal unit months (AUM) of forage per year. Income generated by the beef ranching sector amounted to $88 million in 1988 with 2,207 person-years of employment generated. Grazing fees paid to the province in the 1988-89 fiscal year totalled $1.63 million.

Questions and issues to be addressed

Should user fees be introduced or, where already in place, be increased for the recreational uses of Crown lands (hiking, fishing, hunting) in order to encourage conservation and to fund enhanced management activities?

The variety of demands on the forest base will continue to grow, requiring heightened levels of management as well as more complex decisions over resource allocation. This pressure on the full range of forest values will continue as incomes rise and leisure time increases, both domestically and internationally.

Due to public ownership of the resource and the lack of a competitive market for many of the resource values, the usual economic criteria for management decisions on resource use allocations are lacking.

Submissions to the Commission provided two guiding principles for the economic use of the forests:

- the forest capital base should be sustained for future generations
- the return on all forest values should be optimized

Major economic issues raised in submissions to the Commission included whether:

- a fair return to the province from timber harvesting is being realized
- present forest management practices recognized the full values of other commercial and non-commercial uses of the forests
- present rates of timber harvesting preclude future economic options related to wilderness values
- allocation of harvesting rights and the consequent types of industrial activity are providing appropriate levels of employment and economic development opportunities
- greater value could be obtained from the existing timber harvest by a more diversified industrial base

2. Economic/Industrial strategy

The original basis of British Columbia's industrial strategy in the forest products sector lay in the allocation of timber harvesting rights to companies that would establish and maintain processing facilities. This strategy was supported by the introduction of long-term tenures which companies could use as an asset in obtaining financing.

The government also restricted the export of raw logs to those surplus to the needs of domestic mills, in order to avoid exporting employment.

Questions and issues to be addressed

Although the forest resources were used to create revenue for government, they were also used to pursue other goals. Timber was allocated in an effort to open up the province, encourage the development of roads and secure community stability. In essence, the government accepted less direct revenue from the timber resources in return for development.

Should restrictions be imposed on the shipment of logs between regions in order to ensure community stability?

The current state of the industrial strategy is less clear. The province still appears to be attempting to attract primary industry by the use of Pulpwood Agreements that allocate rights to under-utilized fibre such as chips and deciduous species. However, the recent trend towards removing a tie between forest tenure and timber processing facilities suggests a specific policy of using the resource base to ensure community stability has been dropped as an economic strategy.

With the exception of a new "value-added" small business program, no focused or long-term strategy for the development of industries or markets in the forest sector was identified in submissions or responses from government.

Part of the lack of a "support" strategy relates to the fact that international trade agreements have limited the province's ability to use resource pricing as a development tool. However, competition for the available annual harvest has increased to the point where it can be argued that government does not need to support new developments. Even species that were previously considered "weed" or non-commercial are now gaining attention from investors.

Provincial Ministry response to the Commission's questions on industry support programs was that financial assistance for new projects is the same for the forest industry as that available to all industries. Projects of interest to the government are those which introduce new technology or bring under-utilized species into production.

Marketing support by government is offered to the forest industry through a joint program with the Council of Forest Industries (COFI) — the Co-operative Overseas Market Development Program. The government also co-operates with the Federal Government to open markets and reduce trade barriers. A new program to assist the remanufacturing industry is also being jointly developed with COFI and remanufacturing industries to raise the profile of specialty product producers in foreign markets.

Questions and issues to be addressed

These two programs do not address market information such as product pricing and product specifications. Assistance from government may be provided to individual companies for market development on a repayable loan basis.

Other resource uses, such as resort areas, also do not seem to have a clear development strategy. Resort or recreation developments are accommodated within the overall timber production strategy rather than being given primary consideration in a balanced strategy. Exceptions do occur; for instance, recent partial logging restrictions on the Inside Passage to preserve views for cruise ships. However, no linkages can be drawn between this decision and an overall forest-related tourism strategy.

Should the provincial government bring forward a comprehensive economic strategy related to forest resource uses?

3. Employment/Economic development

The timber resources of the province have traditionally been allocated, on a non-competitive basis, to companies prepared to commit to establishment and maintenance of fibre conversion facilities. Government allocation of forest resources to other economic activities has usually required demonstration of a higher social or economic use (resorts, mining) or a compatibility with timber harvesting.

For non-timber values, historical provision of the right to use the resource at little or no charge has impeded development of market values that would justify pre-emption of logging in specific areas on economic grounds. Submissions drew attention to the international markets for privately-managed wilderness, hunting and fishing estates. It was held that these types of activity could, in some cases, moderate economic losses resulting from forest harvesting reductions.

Should tenures that provide for economic uses be developed for the forest resources while limiting or excluding timber harvesting?

The nature of the forest industry's processing mills was often stated as a source of concern. Traditionally, British Columbia has developed capital-intensive processing plants producing high volume, low-value commodity products such as dimension lumber and raw pulp.

This was cited as a major reason for loss of employment opportunities in the forest sector as industry has continued to automate its mills. Comparisons of employment per cubic metre of wood harvested, or value-added per cubic metre processed, in British Columbia versus other forest regions, were common.

Questions and issues to be addressed

Should a greater proportion of the annual timber harvest be made available by way of competitive bid?

Countering these statements were claims of high labour and logging costs as well as pressures of international competition. Expansion of competitive log markets, which would improve allocation of logs by species and grade (via price), was suggested as a method of improving both industrial diversification and economic return from the resource.

4. Value-added manufacturing

The term "value-added manufacturing" was generally used in submissions to refer to secondary manufacturing or the remanufacturing of wood products and the production of specialty products.

In an economic sense, the term referred less to the level of value-added achieved in primary processing facilities, such as lumber or pulp mills (commodity products), than to production of products that demand greater control over grade and quality of production (specialty products; examples include paper, furniture, sash and door, mill working stock and fine papers). Specialty products are seen as able to command a higher market price and hence add value beyond the additional labour costs of their production.

In general, the forest industries of British Columbia produce standardized product sizes and grades, such as construction materials, for well-developed international commodity markets. Cyclical instability in these markets, the economic need to utilize all the wood fibre, and the financial stability and resources required to operate in world markets, have led to an integration of wood processing activities (sawmills, pulp, newsprint and panel product operations) within a few large companies.

The interest in value-added manufacturing is derived from a desire to enter more lucrative "niche" markets. Production tends to employ more labour per volume of wood processed, and the initial investment can be small, relative to commodity mills.

Should community-based forest harvesting tenures be introduced to encourage diversity in local investment and employment opportunities?

The consequent demand of such facilities for cants and lumber does not necessarily increase the total demand for timber, however. The transportation cost component per unit of value of specialty product prices is lower, permitting more flexibility in plant location.

Hence a value-added mill is seen by many communities as a viable diversification option which will improve community stability.

Questions and issues to be addressed

Until recently, the Government of British Columbia did not attempt to alter the product mix of the forest industries. Concerns over cyclical instability in product prices and markets were addressed either through the integration of production facilities or through market diversification. A small portion of the annual cut was set aside for small logging or milling concerns.

Recent interest in the development of specialty mills, and concern by mills over the lack of the appropriate sizes and grades of lumber as an input to their factories, led to a decision to reduce the volume of cutting rights available to existing tenure holders by five per cent. These rights were then added to the portion of the AAC allocated to small businesses.

This volume is being reallocated via a bidding process that uses the level of value-added in manufacturing as the basis for the awarding of timber harvesting rights (Small Business Forest Enterprise Program).

The first timber sale licence under the SBFEP was awarded in November, 1988. Within 20 months, 60 licences were awarded, totalling 7.1 million cubic metres of wood to over 50 companies.

It is estimated that $67 million of new investment will occur as a result of these awards. The investment is expected to create 1,170 new jobs and maintain another 1,600.

The original harvesting quota for small business sales was retained as this value-added program was introduced. Competition among existing mills to replace this "lost" five per cent of their log supply through the original "bonus bid" small business sales has driven up the stumpage received by the government.

The existence of two small business programs administered by the Ministry of Forests has resulted in confusion over the relative merits of these programs. While many submissions found fault with the bidding practices, and even the harvesting practices under the old Category 1 and 2 small business sale, the value-added program was generally cited as having produced positive developments.

Harvest committed to the small business programs under the management of the Ministry of Forests is now 15 per cent of the AAC. Submissions called for increases in the allocation of timber to these facilities, as well as support for their further development (lower stumpage rates, quotas).

Should the government expand or contract the Allowable Annual Cut allocated to the Small Business Forest Enterprise value-added program? Should timber harvested under the original Small Business sale now be tied to value-added manufacturing?

Questions and issues to be addressed

Issues related to the value-added manufacturing industry revolve around employment and income opportunities, and the ability of specialty product manufacturers to pay more for their inputs and/or receive higher prices for their products.

Is the present system of allocations of timber harvesting rights providing a fair economic return to government?

Lack of price competition for the timber resource has been cited as the underlying problem in allocating the various qualities and species of logs to their most valuable use. Development of a competitive log market was suggested as a way to not only ensure the government receives the greatest value for its timber, but to encourage the development of a more diversified manufacturing base.

Should a more competitive log market be developed?

It was also maintained that development of a more competitive log market would eliminate the need for the "Memorandum of Understanding" on softwood lumber products that Canada and the United States entered into as a result of subsidy/countervailing duty investigations in the United States.

5. Tenure

The economic importance of tenure was stressed as both a pre-condition to such economic activities as investment in timber processing facilities and silviculture, as well as an insurance policy against the activities of one resource user acting to the detriment of another.

The owners of timber processing facilities feel some form of tenure is required in order to finance investments, while a secure long-term tenure is required to justify expenditures on intensive silviculture. Historically, tenure allocations in British Columbia were intended to secure new investment in processing facilities and to stabilize local employment opportunities.

Submissions to the Commission underlined the continued importance communities place upon the use of the forest resource in providing community stability. Many submissions indicated the desire of communities to encourage small specialty product mills to provide local investment opportunities and employment diversity.

Basic tenure issues to be considered include whether:

- long-term tenure is required to attract investment
- owners of processing facilities are best suited to manage the forest for all of its values
- tenure has, in fact, encouraged increased silviculture

Questions and issues to be addressed

The large, integrated companies now operating in the province's forests have the advantage of skill levels, experience and a working knowledge of the land base. An option is to increase both the land base managed by the large companies, and the management requirements that are expected of them. Most established operations would welcome the chance to be judged on their performance, while companies with poor performance records were monitored more closely or penalized, if warranted.

In the same vein, many submissions called for the same chance for small woodlot operators, with the option of tailoring the size of the woodlot to meet economic viability criteria. Other proposals included establishing small area-based tenures or woodlot licences in support of value-added manufacturing facilities.

Should the volume of timber allocated to the woodlot program be expanded?

Should woodlots be large enough to support value-added manufacturing facilities?

Many resource use conflicts on established tenures were seen as resolvable if all users were treated in an equitable manner. For example, harvesting plans that respected natural range land boundaries or established trapping lines could be achieved through improved communication. This form of consultation and conflict resolution increases the income potential of the forests and expands the full range of values that can be realized from the land base.

Other resource use expectations of the forest base remain more difficult to meet through tenure. A significant reduction in the land base through withdrawals for parks, wilderness and other uses could negatively impact on the economy through decreased employment and reduced government services. It was noted that this impact would be felt more keenly in small rural communities dependent on the forest industry.

For instance, halting logging in areas visible to cruise ships or in resort areas involves a definable economic loss with only a limited ability to define who benefits and who should pay for this form of resource use.

The extreme case is the preservation of wilderness areas where access is either limited or no improved access is allowed. New approaches to measuring resource values and allocating priorities within tenures may be required.

A further major consideration with regard to forest harvesting tenures is their transferability. At present, forest licences are sold as part of a timber processor's property (with the required approval of the Minister of Forests). Sales of this nature, where the mill is subsequently shut down, indicate the value of obtaining secure harvesting rights. In many cases these sales also increase corporate concentration.

Under what, if any, conditions should timber harvesting licences be sold or transferred?

Questions and issues to be addressed

Decisions should be made as to whether the government should allow tenures to be sold, in whole or in part. An option previously raised, and used in other areas such as Alberta, is to allow only a portion of the cutting rights to be traded, freeing up the remaining cutting rights for reallocation to other uses or to encourage other activities.

Potential loss of rights on transfer would also serve to reduce the likelihood of mills being purchased for the harvesting quota and then being closed.

Should any compensation be paid for the removal of tenure or allowable cut? If yes, under what conditions?

Parallel to the issue of whether harvesting licences should be transferable is the question of whether compensation should be paid when timber harvesting quotas or licences are removed by the government in order to achieve other forest management goals or objectives. Currently, compensation is paid if more than five per cent of the quota is removed within the deletion period specified in the licence.

A proposed proxy for this compensation value is the cost of the intensive silviculture that would be required on other forest lands to replace the loss of harvest volume.

6. Wood fibre exports

Log exports have been restricted from British Columbia since 1912 through legislation in the Forest Act. The fact that the province has retained a law restricting exports as a method of resource management for a long period of time has allowed it to retain an exemption from the prohibition on resource export controls under the General Agreement on Tariffs and Trade (GATT), to which Canada is a signatory. Any changes considered to the present export restrictions should be reviewed within the context of a potential loss of this exemption.

The British Columbia Government co-operates with the Federal Government (which has jurisdiction over international trade) in determining whether unprocessed logs can be exported. The common rule of thumb in qualifying for an export permit is whether the logs are surplus to the needs of domestic processing facilities.

Questions and issues to be addressed

According to the recent report of the British Columbia Select Standing Committee on Forest and Lands (June 1990):

> ***"The current level of log exports represents about 2 per cent of the provincial cut. This figure, 2 per cent, also represents the average annual log exports from the Province for this century."***

The relatively low level of log exports on a province-wide basis belies, however, the relative impact of log export shares in different regions, with log exports predominantly from the north coastal area of the province.

In the south coast region of the province, government taxes away any premiums that may occur between the domestic log price and the international market price.

Export log prices vary from domestic prices due to several factors. These include:

- lack of a domestic market for a particular species
- the need of foreign companies to supply and maintain their own processing facilities and employees
- the ability of foreign companies to utilize the log more efficiently
- differences in the value of the products made from the log in Canada and foreign markets

In certain instances, such as in remote coastal areas, log exports were described as a necessary condition for logging to continue, either because there were no domestic markets for certain types and grades of logs, or due to the overall cost of logging not being viable at domestic log prices. Harvesting of certain stands for log export is also conducted in order to allow rehabilitation of decadent stands.

Is there any continuing justification for the export of raw logs? If yes, why?

Other submissions drew a direct connection between the higher prices for export logs and an under-pricing of the timber resource to forest companies in British Columbia.

There was little discussion in the submissions concerning wood chip exports. The majority of export chips in the province are shipped through a consortium of sawmills. An excess of chips in the province and the support that chip sales provide to sawmills have resulted in a less regulated market for this fibre.

Should further restrictions be imposed on the export of logs, wood chips, "square logs" and cants?

The level of processing required on logs to avoid export restrictions was seen to be too limited. There were suggestions that:

- the size of processed timber or cants be regulated or restricted in export markets
- increased processing be undertaken in the province

Log imports into British Columbia in 1987 totalled 496,624 cubic metres, of which 449,556 cubic metres were pulpwood.

Options and implications

1. Current status

- No additional harvesting rights are allocated except under the small business value-added program and outstanding Pulpwood Agreements.
- With the exception of "managed forest lands," logging remains unregulated on private lands.
- Government assistance to new industry, with the exception of market development in co-operation with COFI, remains "industry neutral."

Implications

- Corporate concentration will continue to increase as companies seek to increase their available timber supply through acquisitions.
- The number and diversity of remanufacturing facilities will increase, with greater participation by large companies undertaking joint ventures in order to gain access to small business harvest allocations and increase profit margins.
- Inefficient mills will close or be closed down, as companies are purchased for their harvesting rights. Community stability, in general, will be reduced.
- Small independent companies will have difficulty entering the industry as sources of financing or market information come under the control of a few large companies.
- Prices for private timber will escalate, while availability will drop drastically.
- Conflicts over logging and logging practices will increase between private property owners and the public at large.
- Economic or commercial interests will continue to dominate forest land allocation decisions.

- The environmental "costs" associated with timber harvesting and processing will rise, shifting the economic balance of forest uses in favour of a few non-consumptive commercial uses of the forests such as wilderness tourism.

2. Further development of a competitive log market

- Any new forest harvesting rights would be allocated to forest managers who do not have processing facilities.
- All small business harvesting (volume) sales would be conducted at "arms length" through log auctions.
- Licensee "quotas" would be reduced or not transferred upon the sale of processing facilities.

Implications

- Log market prices would reflect log species and quality.
- Forest managers would tend to manage for the quality and value of logs rather than the quantity of logs.
- Markets would be developed for commercial thinnings.
- Government revenues would increase and tend to follow market price fluctuations.
- Industrial diversification would be encouraged.
- Corporate concentration would be reduced.
- Diversification potential in the manufacturing sector would be enhanced.
- Industry would lose a significant financing tool (forest resource tenure).
- Greater control over log sorting and grading would occur in the woods and at the mill site.
- The efficiency of a mill's utilization of logs would determine which processing facilities could obtain logs.
- The Canada/U.S. "Memorandum of Understanding" on softwood products may be eliminated.
- Community stability could be threatened.

3. User fees

- Resource user fees would be introduced to reflect management costs.

Implications

- Fees for hiking, fishing, hunting, camping, etc. would be established or improved to reflect resource values, including their replacement or management costs.
- Management goals for all forest values would be given greater weight in forest land use planning.
- Private management of resource-based activities, other than logging, would be encouraged or become more viable.

4. Introduce "Value-added" community tenures

- Area-based community forest tenures would be developed.
- Communities would be given the revenue raised from stumpage on their tenure; municipal transfer payments from the province would be reduced by an amount which normally would have accrued to the province.
- "Value-added" criteria would be used to allocate harvesting and processing right to mills.

Implications

- Community control over forest resource use would increase.
- Employment stability would be established.
- Local understanding of forest management practices could be improved.
- Tenures could add to development of competitive log markets.

Education

5

5. Education

Guiding principles

"The purpose of the British Columbia school system is to enable learners to develop their individual potential and to acquire the knowledge, skills, and attitudes needed to contribute to a healthy society and a prosperous, sustainable economy."

B.C. Ministry of Education
School Act, 1989

Related issues

- *formal public education*
- *general public education*
- *in-service education*
- *research and development*

Discussion

1. Introduction

Education was viewed in the submissions as a key to developing a well-informed public, capable of participating effectively in forest resource planning and decision-making. There was general consensus that, while education may not change strongly-held values, it will lead to a greater understanding of the issues involved and, ultimately, foster a greater willingness to accept the compromises and trade-offs which may be necessary.

Public comment showed a primary concern for balanced, non-aligned forest resource programs offered through formal education channels and "hands-on" field experiences. Crucial to providing this balanced perspective, was the co-operation and active participation of: the Ministries of Education, Forests and Environment; environmental groups; the forest industry; and the university community.

While formal education will provide a strong base for future decision-makers, access to information and education for the general public was also stressed. An independent source of factual, unbiased information was seen as necessary to improve the quality of public understanding and debate on forest issues.

Questions and issues to be addressed

Continuing education, extension programs by the Ministry of Forests, and in-service programs were suggested for both government officials and industry personnel to increase environmental awareness and to update knowledge and skills in integrated resource management. There was also interest expressed for developing certification programs for forest workers.

2. Formal public education

Elementary and Secondary School

The lack of a public forestry ethic in British Columbia was seen as resulting from the limited coverage of forest resource management and environmental values in the public school curriculum. A lack of information in schools and differences in exposure to forests have created an urban/rural split on the values of the forests.

The lack of educational background was seen as limiting the potential for reasoned debate and decision-making on environmental options and forest resource uses. It was suggested that the goal of the Education Ministry could not be completely met without significant teaching of the social, environmental and economic impact of the forests on the province.

The forest industries have been responsible for development of many regions of the province and have been a major factor in the internationalization of the province's economy. The contribution of the British Columbia forest industry and its employees to all levels of government was estimated to be $2.8 billion in 1988 (Price Waterhouse). These funds pay for a multitude of services such as community infrastructure, health services and education. However, the contribution of the forests to the creation of wealth is poorly understood.

There is limited general knowledge of forest ecology, existing forest land allocations and different forest land management practices, including forest harvesting practices and how competing uses can be accommodated. Submissions to the Commission overwhelmingly called for an improvement in the information base available to the public, starting with the school system.

Questions and issues to be addressed

Accordingly, the Commission has recommended in its interim report to government that the Ministry of Education begin to include at all levels of the curriculum significant information about the importance of the resource industries, particularly forest resources, and to include accurate, balanced material about forest management practices (including managing for all values).

(The full text of the interim report is attached as Appendix II to this paper.)

Technical schools and colleges

Should a system of training and certification in basic forest ecology and forest management practices be introduced as a requirement for all individuals who work in the forests?

Submissions reflected a general interest in ensuring individuals who work in the forests, or within the forest sector in industry or government, have knowledge of ecologically-sound forest resource management practices. The importance of both technical skills and field experience was stressed as being required in integrated resource management. The need for these skills will increase if land use planning is introduced.

Many submissions called for development of a certification program for all individuals working in the forests. It was suggested that programs be established and introduced at technical schools and colleges around the province. The courses could address all aspects of ecology, fish and wildlife, harvesting practices and resource management. The introduction of certification requirements throughout the province in this manner was held to be necessary for intensive forest management.

It was also felt that a linkage should be developed between community colleges and the universities on forest-related programs. For instance, it was felt the initial two years of education towards a degree in forestry should be available at some colleges.

University Education

The adequacy of the forestry education system at the university level was also questioned in the submissions. It was noted that 40 per cent of the foresters working in the northern interior region of the province received their degree from outside of the province. Submissions called for a broader-based interdisciplinary approach to the education of foresters and other forest resource managers so graduates would understand and practise ecologically-sound forestry.

Questions and issues to be addressed

Understaffing in both government and industry, resulting from cutbacks during the recession during the early 1980s, was seen as having impeded the introduction of improved forest practices. It was also seen as having led to lower enrolment in forestry courses, as well as poor job prospects for specialized graduates.

The following table, excerpted from the September, 1989, proposal by the Northern Faculty of Forestry Committee, compares the use of foresters and forestry graduates within British Columbia and in other forest regions.

Region	Estimated Hectares/Forester
United Kingdom	2,900
Norway	14,000
Sweden	17,000
United States	17,000
Canada	128,000
British Columbia	
Coast	9,000
Southern Interior	24,000
Northern Interior	54,000

Improvement of "regional" access to forestry education was advocated in some submissions through the development of a Forestry Faculty or a Faculty of Forest Resource Management at the proposed University of the North in Prince George. Supporters of this concept saw improved opportunities for local students to study and work in rural communities.

Should a Faculty of Forest Resource Management be established at the new University of the North, or should additional resources be directed towards ensuring the Faculty of Forestry at the University of B.C. becomes a true centre of excellence?

Another proposal was that the northern university have a different focus and offer specialized courses in an interdisciplinary forestry program. This view was challenged by others who doubted this province had the ability to fund and staff two separate faculties of forestry. Rather than split resources, it was suggested that it might be wiser to concentrate on nurturing one centre of excellence in forestry.

Questions and issues to be addressed

3. General public education

A need for much more public information on the forest environment and the management of the forest resource was reflected in the submissions. There was a lack of understanding as to how the public could presently contribute to forest management decisions. There were also concerns over decisions that might be made by a poorly informed public.

It was felt that government should provide information on the existing public involvement process as well as the rationale for decisions presently being made. A role for industry in communicating how they manage the forests, including the use of conducted tours, was clearly indicated. Greater opportunities for "hands on" experience were proposed through expansion of community woodlots and demonstration forests.

4. Research and development

Comments on the issue of research and development tended to focus on what is considered a poor understanding of silvicultural systems and ecological interactions and the limited understanding which currently exists in value decisions between resource uses.

There are several research forests in the province and there has been widespread testing of harvesting techniques at a practical level in the forests. However, we do not have experimental forests in all biogeoclimatic zones.

It was also noted that there is no single experimental forest in the province which has tested silvicultural systems. An understanding of the response of the forest to different silvicultural practices is necessary to manage for both the quantity and quality of harvests in the future, the effects of the practices on other forest values throughout the rotation period and their impact on the environment.

Other areas, such as the Trust Lands in Washington State, are introducing centres for research on old growth harvesting systems and the economic aspects of resource management systems. At present, very little research has been conducted in British Columbia upon alternative management systems in old growth forests and the variety of economic and spiritual values these forests can represent. Little or no research has been conducted on the options available to tie multiple resource use, environmental and spiritual values, harvesting practices, processing facilities and community stability into cohesive forest management plans.

Questions and issues to be addressed

Should the province establish a substantial forest research program focusing on silvicultural systems, interactions between forest resource values and the economics of intensive forest management?

The approach to making decisions on the values of the forests, other than in commercial uses, was generally seen as inadequate. Research on the economic contributions of tourism and forestry employment was generally not available or comparable. Other forest values have not been the subject of research and/or documented in usable form. New research on a "system of accounts" for forest resource values, similar to the National Accounts, was proposed as a method of beginning to understand the status of all forest values and their inter-relationships in practising sustainable forest management.

Options and implications

A. Post secondary education

1. Current status

- The University of British Columbia has the only Faculty of Forestry in B.C.
- A Master's program in natural resources management is available at Simon Fraser University.
- The first year of the forestry program may be available at community colleges.
- Four colleges offer diploma programs in forest technology.

Implications

- A shortage of graduates may occur if requirements for the intensive management of forest lands increase.

2. Enhance present Faculty of Forestry at the University of British Columbia

- One degree-granting university for forestry would be maintained in the province.
- Funding to the faculty would be increased to ensure its development as a centre of excellence for forestry education.

Implications

- Enhanced funding would allow the faculty to specialize in a greater variety of forest-related disciplines.
- Better co-ordination of the limited available funds for research facilities, experiments and research.
- A higher profile would attract more students and a high calibre of professors.

3. New Faculty of Natural Resources

- A new Faculty of Natural Resources would be established at the University of the North at Prince George.
- Course content would span the range of forest ecology, resource economics and resource management practices.

Implications

- Access to natural resource studies would be improved for northern students.
- Companies and private individuals would have improved access to expertise and resource information.
- Funding by government and industry would be dispersed.
- Competition among university faculties would increase specialization in specific natural resource research and management areas.

B. Education of forest workers

1. Current status

- There are no educational certification or training requirements for employment in the forest industry.

Implications

- New entrants to forestry employment learn on the job.
- Implications of different forest harvesting techniques or other forestry practices are poorly understood.
- Lack of exposure to the ecological consequences of forestry practices reduces potential forest quality.

2. Training Programs

- Night school and extension programs would be developed and tailored to individual resource use employment opportunities.
- New work entrants in such forest sectors as parks, range development and weed control, wildlife management, guiding operations and timber harvesting would require certification.

Implications

- Enhanced knowledge of forest ecology would reduce the potential for damage through negligence in forest use and management.
- Developing and providing training or apprenticeship programs would incur a cost for government and students or their employers.
- General level of forestry expertise would be increased in all areas of the province.
- The quality of public input into land use planning and integrated resource management would be improved.

Appendix I

British Columbia's forests: A historical perspective

In 1937 the Chief Forester of British Columbia, Ernest C. Manning, told the Vancouver Board of Trade:

> ***". . . our forest resources are the real central bank of British Columbia. They stand as automatic governors to our streams. They act as security for our borrowings. They are a splendid investment for our sinking funds. They will pay dividends in good years and bad years. There will be no failure if proper business principles are used in their management. Keep the assets in a productive state and do not dissipate the capital."***

Manning's speech underlines twin themes that have never changed — the forests as the mainstay of the provincial economy and the need to regenerate the forests at a rate to assure the province an abundance of timber far into the future.

When Europeans first settled in British Columbia the forests were little valued. They were seen as inexhaustible and a hindrance to settlement and farming. But even before the Fulton Royal Commission of Inquiry on Timber and Forestry of 1909-10 the provincial government had realized that changing the terms of access to Crown timber would assure a continuous flow of revenue to the provincial coffers and help develop the province.

In 1888 a royalty was introduced on trees felled and by 1896 the direct alienation of timber land by Crown grant had been phased out. In contrast to the United States, where private ownership predominated, the forests of British Columbia became largely the responsibility of the provincial government.

Commercial logging began in the 1840s on Vancouver Island and spread to the lower Fraser after the 1858 gold rush. The new Panama Canal opened export markets in the eastern USA and Europe after the first World War, while the growing population of western Canada boosted domestic demand for timber. The hard and dangerous work of the logger was matched by a somewhat cavalier mentality in the industry. Logged sites were often not replanted and by the 1940s B.C. had suffered a number of casualties in logging ghost towns.

The province's Chief Justice, Gordon Sloan, was asked to develop recommendations to ensure the management of the forests as a perpetual resource. Sloan in his 1945 Report on the Forest Resources of British Columbia advocated the division of the forest land base into private and public working circles which were to be managed for sustained yield. Adopting this recommendation, the government introduced two types of tenure, the Tree Farm Licence and the Public Sustained Yield Unit. In the TFL the licence holder would manage the forests under Forest Service supervision, while the Forest Service was to manage the PSYUs.

The security of tenure offered by the TFL was seen as the necessary collateral for investment in pulp and sawmills and the incentive needed by industry to manage the forests for long-term yield.

The new tenure system led to control of the industry by a handful of major companies. Industry concentration was and is evident more in manufacturing than in logging; nevertheless small logging operations perceived themselves as disadvantaged, unable to compete for cutting rights. Peter Pearse in his 1976 Royal Commission report on the British Columbia forest industry noted that since the 1950s, "Control over timber rights has become increasingly concentrated in the hands of a few large corporations in spite of the dramatic growth of the forest industry in the last twenty years."

By 1975 six companies held 73 per cent of the committed annual cut in the coastal forests, while in the Interior six companies held over 40 per cent of the committed annual cut. As Pearse anticipated, there has been further consolidation through corporate takeover in the years since. Two of the majors, one headquartered in New Zealand, together control almost 19 per cent of the province's lumber capacity and 50 per cent of the pulp capacity.

No policy changes followed the Pearse report to address his concerns about industry concentration but the tenure system was reformed with the intention of making it more equitable and less complex. Two important features of the Forest Act of 1978 were the conversion of about 90 of the old PSYUs into one-third as many TSAs and the consolidation and simplification of old forms of tenure. For virtually all licensees the new tenures provided greater security of tenure. Another major policy change was that timber available for competition was doubled to give small business operators more opportunities. More emphasis was placed on industry diversification and wood processing.

Problems have been experienced in the Small Business Forest Enterprise Program, particularly over access to an affordable supply of timber, but it has become a substantial enterprise, accounting for almost 22 per cent of total forest revenue in 1988-89.

Reforestation and silviculture expenditures have increased greatly in the decade of the 1980s, a response to growing public concern that the forests may not be a perpetual resource. Public ownership vests in the government direct responsibility for reforestation, hence reforestation policy reflects the political will of the time.

Before 1912 cutting rights were granted without a requirement to replant. The final report of the Fulton Royal Commission led to the passage of the first Forest Act in 1912. The Act established a Forest Branch (since 1945 known as the Forest Service) whose responsibilities included conservation of the existing forests, reforestation and prevention of forest fires. In the 1920s a Forest Reserve Fund was set up to develop and replant forest reserves.

The years between the two world wars were characterized, generally speaking, by the exploitation of the forests although the fledgling Forest Branch and the larger forest companies pressed for responsible forest management. The second Royal Commission into Forest Policy (the Sloan Report of 1945) was a catalyst for change.

Sloan, the advocate of sustained yield, recommended replanting 162,000 hectares of not satisfactorily restocked coastal forest at the earliest possible date. A 1946 amendment to the Forest Act established a Silviculture Fund. A levy from the sale of Crown timber in the Interior was paid into this fund to reduce the fire hazard and ensure second growth. Further amendments introduced a period of cut control regulation. All these measures signalled a renewed government commitment to perpetuating the forests, although Pearse in 1976 noted that the Forest Reserve and Silviculture Fund programs had been inactive for some years.

Public concern over forest management grew in the postwar period and in 1955 Sloan was again asked to advise. His 1956 report recommended a major expansion in the silviculture and planting programs. Forest Service seedling nurseries were expanded on the coast and established in the Interior. A 1964 amendment to the Forest Act gave incentives to the industry for post-logging silvicultural treatments by stumpage offset (later suspended) or from funds appropriated by the Legislature.By 1968 the Forest Service had to contract some of the tree planting, which led to the development of a separate silviculture industry in the province.

In the 1970s the reforestation responsibility shifted from government to industry. Tree Farm Licences and the Forest Licence that replaced the Timber Sale Harvesting Licence carry a contractual obligation to reforest harvested sites by natural or artificial methods.

Until 1987 most regeneration costs were recouped through reduced stumpage payments. Important changes in the Forest Act that year transferred the cost of basic silviculture to the major licensees and required them to submit a pre-harvest silviculture prescription (PHSP) for every site.

Silviculture expenditure in 1988-89, inclusive of the Forest Resource Development Agreement (FRDA) and Small Business Forest Enterprise Program (SBFEP) programs but excluding private sector expenditure, was almost $202 million, 32 per cent of total forest revenue. The number of trees planted has quadrupled from 74 million in 1980 to a forecast 300 million in 1990, while areas brushed and weeded and hectares spaced and fertilized have increased greatly.

By the late 1980s British Columbia produced 63 per cent of Canada's sawn lumber, most of its plywood and 25 per cent of its chemical pulp. The allowable annual cut in 1988-89 was 73.5 million cubic metres of wood, which generated approximately $624 million dollars in revenue.

In 1988 the forest industry in the province directly employed 89,000 people and by 1989 that number had risen to 100,000. For each of those employees there are at least two others indirectly linked with the fortunes of the forest industry and many communities in British Columbia would not survive the shutdown of local logging operations or the closure of a mill.

Government support for wood processing goes back a long way in history. As early as 1888 the building of a mill was a condition of every lease although, as Fulton notes, "the avoidance of this requirement was made possible by subsequent legislation." The first pulp and paper mills were on or near the coast. They were integrated into existing sawmills and much of their fibre supply came from the sawdust and chips of the adjoining lumber mill. In the 1960s several pulp mills opened in the Interior, partly because of improved markets and transportation but chiefly because government policy linked cutting rights with the construction of a pulp mill. Later, improved technology permitted the economic milling of smaller logs. The pulp and paper industry remains largely export dependent although less subject to price swings than the lumber market.

Appendix II

An Interim Report of the British Columbia Forest Resources Commission

July, 1990

Arising from the more than 1700 submissions the Commission received, and reinforced by the round of public meetings the Commission engaged in this past spring, four issues emerged that, in the view of the Commission, can and should be addressed now and not have to wait until the major recommendations are submitted early in 1991.

These issues have to do with the availability and compatibility of inventory information relating to all forest values; the need for the formal education systems of this Province to address better the importance of natural resources to the Province and the processes used to obtain those resources; the adequacy of public input into forest resource planning and management, particularly as they relate to TSA Committees; and the serious uncertainty affecting forest land use decisions resulting from the land claim issue.

The Commission recognizes that by commenting on these issues in advance of its major recommendations to government, it may be seen by some as taking certain issues out of context. The Commission believes, however, that a variety of factors provide strong reasons for putting certain specific recommendations or comments forward at this time. In doing so, the Commission believes that the government can reasonably take some specific action now and that these actions, albeit small, should provide at least a start to improving forest resource management in British Columbia.

Inventories of forest values

The Commission found, through written submissions, public meetings and detailed interviews with provincial government ministries, that good inventory information pertaining to the full range of forest values and to the capacity of the forest land base to support those values is seriously inadequate.

The Commission also found that where inventory information does exist in one ministry, it is often not compatible with inventories developed in other ministries for other purposes. The result is that decision makers and the public have very inadequate and imperfect information on which to base decisions or debate.

The result of not knowing, in an adequate way, what values are inherent on specific areas of our forest lands, is predictable. Long-term decisions are often made in the absence of good knowledge of all the forest values being impacted on or with little regard for values other than the specific one being managed for.

Further, the public is often confused and subject to being given conflicting and sometimes false statements as to what values may or may not be on any given land base or what the impact on those values may be by any given management practice.

The Commission believes that significantly greater effort will have to be spent to address inadequacies in the inventory information base in a number of areas. Given that the exact nature and extent of inventory information will depend, in large measure, on the forest management processes proposed and adopted, the Commission will address this issue in greater depth as part of its major recommendations.

Of immediate concern, however, is the lack of standardized inventory information and, therefore, a lack of compatibility of the inventory information presently collected and processed by provincial government ministries. The Commission has identified at least 10 ministries that currently hold inventory information relating to specific forest values or to the forest land base. These are:

- Agriculture and Fisheries
- Crown Lands
- Energy, Mines and Petroleum Resources
- Environment
- Forests
- Municipal Affairs, Recreation and Culture
- Native Affairs
- Parks
- Tourism
- Transportation and Highways

These inventories have generally been developed to meet some historical, ministry-specific need and, in many cases, have been developed without regard for their compatibility or relationship to inventories of other forest values. The Commission believes that better and more compatible information about all forest values must be made available if more informed and reasoned debate is to occur. This is particularly important in areas where more than one forest value is to be part of a forest land base decision. Accordingly, the Commission recommends that:

> ***The government immediately examine and implement ways by which the full range of forest related inventories can be made standard and able to be used on compatible systems while, at the same time, retaining the values for which they were originally intended.***

Education

Throughout all of its investigations to date, the Commission has become increasingly aware of and concerned about the woeful lack of understanding of the importance of the resource industries to British Columbia, and of the practices that are carried out in managing those resources. This is particularly true of our forests and of forestry practices. Time after time, the Commission has found that public perceptions are significantly at odds with the actual facts of a given situation.

The Commission is also aware that in many a debate and often in decision-making, perception is reality and the current gap between the two is, the Commission believes, creating a serious, if not dangerous, situation in British Columbia.

Again, the Commission will have more to say on the subject of education when it submits its main recommendations. However, the Commission did note that the public school system is currently undergoing major reform in the Province and that as part of that reform, the curriculum is undergoing significant revision. Since the purpose of the British Columbia school system, as stated in the School Act, is . . .

> ***"to enable learners to develop their individual potential and acquire the knowledge, skills and attitudes needed to contribute to a healthy society and a prosperous and sustainable economy,"***

. . . the Commission believes that greater emphasis is needed in the curriculum throughout the primary, intermediate and graduation years on the overall importance of the resource industries, particularly the forests, to the social structure and to the economy of the Province.

The Commission believes that the educated public of this Province should understand the importance of our forest industries in shaping the Province, in maintaining certain communities, in providing for services such as health and education, and generally in helping to maintain a lifestyle unequalled in most areas of the world.

The public should also have a better understanding of forest practices, why they are used and what their effects are. Accordingly, the Commission recommends that:

- The Ministry of Education be directed to include significant information about the importance of the resource industries to the Province of British Columbia, particularly the forest resource, and to include accurate, balanced material about forest management practices at all levels of the curriculum.

Timber Supply Area Steering Committees

During the conduct of its business, the Commission heard repeatedly that Timber Supply Area Steering Committees (TSA Committees) were generally not working well. In submissions and public testimony, the public cited lack of management commitment and lack of adequate balance from interest groups, other than the Ministries of Forests and Environment and the licensees, as being at the heart of the problem.

While being openly critical of the current structure and public access to TSA Committees, the public generally felt that the concept was a reasonable one and could be improved upon with relative ease. This was particularly true where TSA and Forest District boundaries were the same.

While the Commission intends to address the whole area of public participation in the planning and management of B.C.'s forest lands in its full report, it believes that the Ministry of Forests can and should take immediate action to improve the workings of the existing TSA Committee structure. Accordingly, the Commission recommends that:

> ***The Ministry of Forests should re-examine the purpose, and makeup of and commitment to its Timber Supply Area Steering Committees with a view to making these more effective.***

Land claims

In every region of the Province and from individuals and groups across the whole spectrum of society, the Commission heard concern over the native Indian land claims issue and the strong desire that it be resolved. In commenting on this matter, the Commission is fully aware that the issue of land claims is not part of its mandate. However, because the concern is so widespread, the Commission believes it has a responsibility to pass the concerns it heard through to the government.

First and foremost, the Commission found that the land claims issue is creating a high degree of uncertainty over the Crown lands of the Province. As most of these are provincial forest, the outstanding land claims issue is affecting forest practices. Forest companies, for example, are thinking twice about investments that have long pay-back periods. This is particularly true of investments in silviculture. Communities are concerned that their stability may be threatened and workers are concerned that their jobs and economic well-being may be threatened.

While expressing almost unanimous concern, groups and individuals across the Province are not comfortable with using the courts as a means of settling the issue. The overwhelming view of British Columbians from whom the Commission heard is that they want the land claims issue settled as soon as possible and they want it accomplished by negotiation among the parties directly involved: namely, the aboriginal people and the federal and provincial governments.

Appendix III

Forest tenures in British Columbia

Under Canada's constitution, provincial governments are responsible for managing the timber resources on provincial Crown (public) land.

In British Columbia, enacted statutes provide for:

- the legal framework for a forest tenure system — the right to harvest timber on Crown land
- the sustained yield management of the province's commercial forests — a balance between the annual growth of wood and the annual harvest

To facilitate this, the province has been divided into 69 units, each managed for a sustained yield. The B.C. Forest Service (BCFS) is responsible for all aspects of forest management in each of these units.

In 34 of these management units, specific forest companies have been delegated, through a timber tenure agreement called a *tree farm licence*, the responsibility for carrying out most of the forest management activities.

In the remaining 35 units, referred to as *timber supply areas*, forest companies manage the timber resource according to strategic *resource management plans* prepared by the BCFS. The companies are given this responsibility through the issuance of several different types of timber tenures, each with its specific forest management obligations.

The most common timber tenures in a *timber supply area* are the *forest licence* and the *timber sale licence*. These tenures, and some others, are described below:

Tree farm licences

The *tree farm licence* is a "stewardship" agreement over a *sustained-yield management unit*. This includes the right to harvest a specified volume of timber annually and the obligation to carry out all phases of forest management on behalf of the BCFS. The licence has:

- a 25-year term, replaceable every 10 years
- fixed boundaries

Forest licences

A forest licence allows an orderly timber harvest over a portion of a *sustained-yield management unit* and the timely reforestation of harvested areas according to a strategic *resource management plan* prepared by the BCFS for the *timber supply area*. The licence has:

- a term of 15 to 20 years, replaceable every five years (some are non-replaceable)
- operating areas which continuously shift over time within the *timber supply area* — once an area is harvested and reforested, the licensee moves to another part of the *timber supply area*

Woodlot licences

A woodlot licence is similar to a *tree farm licence*, except the scale of operations is much smaller — not more than 400 hectares of Crown land plus any size of private land.

The licence is for 15 years, replaceable every five years.

Timber sale licences

This licence allows the orderly harvest of relatively small volumes of timber by:

- operators with small *allowable annual cuts*
- operators registered under the *small business forest enterprise program* or others with temporary cutting rights
- holders of *pulpwood agreements*

Pulpwood agreements

A pulpwood agreement provides the holder of a wood residue processing facility, without competition, a supply of wood fibre from pulpwood stands, if sufficient quantities of wood residues, or by-products of conventional timber processing, are not available to the holder.

An agreement covers:

- a 25-year term, and may be replaceable every 10 years
- a large area in one or more timber supply areas

Harvesting authority is provided through a *timber sale licence* where the licensee is responsible for all operational planning, development, basic silviculture and forest protection.

Timber licences

Timber licences (formerly "old temporary tenures") are area-based tenures. They revert to the government when merchantable timber on the area has been harvested and the land has been reforested.

Many of the licences have been incorporated into *tree farm licences*.

Other tenures

In addition to administering the above harvesting agreements, the BCFS also issues these licences and permits:

- *Free use permit*: to authorize the cutting of firewood for personal use; to mineral prospectors for timber to develop their claims and leases; and for other uses.
- *Licence to cut*: to authorize harvesting where the person buying or occupying the land does not have the authority to harvest timber on the land — e.g., an agricultural lease.
- *Christmas tree permit*: to authorize the use of Crown land for Christmas tree production.
- *Cash timber sale*: to authorize the sale of minor volumes of timber without advertising or accepting applications from other persons.
- *Special use permit*: to authorize land use in *provincial forests*, such as for log dumps and harvesting camps.
- *Road permit*: to authorize persons with the right to harvest timber to construct, maintain and/or use a BCFS road.
- *Cutting permit*: to authorize the actual harvesting of timber under a *tree farm licence*, a *forest licence*, a *timber licence* and some *timber sale licences*.

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Glossary

Allowable Annual Cut (AAC)
The volume of timber which may be cut on an annual basis from a given area of land.

Biogeoclimatic zone
In British Columbia a biogeoclimatic system is used as a framework for ecosystem classification. In the biogeoclimatic system, climate is considered to be the principal environmental factor influencing ecosystem development.

Biological diversity or Biodiversity
The term is usually equivalent to species diversity, meaning the number of different species occurring in a given location under given conditions.

Cant
A log partly or wholly square-cut.

Clearcutting
Complete removal of all merchantable trees over an area at one time. Regeneration is generally artificial; this method leads to the establishment of an even-aged stand.

Council of Forest Industries (COFI)
Forest industry trade association, representing coastal British Columbia companies.

Ecosystem
A forest ecosystem is a spatial unit that includes all of the organisms interacting with the physical environment so that a flow of energy leads to clearly defined food and feeding relationships, biologic diversity and biogeochemical cycles (i.e., exchange of materials between living and nonliving parts) operating as an integrated system.

Forest Resource Development Agreement (FRDA)
A co-operative federal/provincial silviculture program for Crown forests which in 1985 succeeded a similar 1980-85 program. Its goals are to reforest Not Satisfactorily Restocked (NSR) forest land and to undertake silvicultural treatments such as juvenile spacing and fertilization.

High-grading
A term commonly used in the mining industry. When applied to a forestry practice it denotes the removal of the most commercially favourable trees of a species or a single species only, leaving the less desirable uncut.

Integrated Resource Management
A decision-making process whereby all resources are identified, assessed and compared before land use or resource management decisions are made. The decisions may involve either multiple or single use in a given area.

Intensive silviculture
Improvement of natural stands or plantations with the intention of increasing yield.

Local Resource Use Planning (LRUP)
One of the five levels of planning in the B.C. Forest Service planning framework. Includes Coordinated Resource Management Plans, Community Watershed Plans, Resource Folio Plans etc.

Old growth
There is no single definition of old growth. Old growth is a forest that contains live and dead trees of various sizes, species composition, and age class structure that are part of a slowly changing but dynamic ecosystem. The age and structure of old growth varies significantly by forest type and from one biogeoclimatic zone to another.

Pre-Harvest Silviculture Prescription (PHSP)
A site-specific management strategy, in 1987 made a legal pre-requisite to logging on Crown land. Pre-harvest prescriptions specify planned forest activities, the methods to be used and the proposed constraints necessary to protect the site and its resource values.

Provincial Forests
Land designated under the Forest Act because it is deemed to provide the greatest contribution to the social and economic welfare of the Province if predominantly maintained in successive crops of trees or forage, or both, or maintained as wilderness. Currently about 85 per cent of the province.

Public Sustained Yield Unit (PSYU)
Introduced in the province after the Sloan Report of 1945 as a form of tenure to be managed by the Forest Service for sustained yield. Later known as Timber Supply Areas.

Rotation
The age at which a forest crop is harvested and replaced by a new stand.

Scarification
Loosening the top soil of open areas or breaking up the forest floor in preparation for regenerating by direct seeding or natural seedfall.

Second growth
A second forest that develops after harvest of the original mature forest.

Selection or Selective Logging
The removal of mature trees, usually the oldest or largest, either as single scattered trees or small groups at relatively short intervals (commonly 5-20 years). Natural reproduction is encouraged and the system promotes a forest of uneven age.

Silviculture
The science and art of growing and tending forest crops.

Slashburning
The practice of burning the slash or residue left over after logging, i.e. branches, treetops, rotten trees etc. Primarily done to reduce the risk of fire and facilitate the planting of seedlings.

Stand
A single contiguous patch of a particular forest age class or forest type.

Stewardship
For forests, stewardship is the constructive use and development of the forests, measured against a long-term standard of trusteeship.

Stumpage
The price determined under Forest Service appraisal procedures and paid to the government by licensees for the cutting of trees on Crown land. Where competitive bids have been received, stumpage includes any bonus bid made by the bidder.

Sustained yield
A forest management regime that involves more or less continuous harvesting, balanced by growth, over managed forest units.

Tenure
An agreement that confers on licensees the right to harvest timber on Crown land. See Appendix III for types of agreement available in British Columbia.

Timber Supply Area (TSA)
In TSAs the forest companies manage the timber resource according to strategic resource management plans prepared by the Forest Service. The most common timber tenures in a TSA are the Forest Licence and the Timber Sale Licence (see Appendix III for definitions). British Columbia has been divided into 69 forest units managed for sustained yield, 35 of these being known as TSAs, the others being managed as Tree Farm Licences (see Appendix III).

Watershed
The entire area drained by a waterway or which drains into a lake or reservoir.

Commissioners

A.L. (Sandy) Peel — Chairman

Sandy Peel was appointed Chairman of the British Columbia Forest Resources Commission on October 11, 1989. He previously held the positions of Deputy Minister of Education (1987-1989) and Deputy Minister of Economic Development (1974-1987) with the Provincial Government.

During his career as a Provincial Deputy Minister, Mr. Peel was responsible for economic development and trade policies, and for developing and implementing major education reforms arising from the Sullivan Royal Commission on Education.

Dean Peter Burns, Q.C. — Vice-Chairman

Peter Burns is Professor and Dean of the Faculty of Law at the University of British Columbia. He has a wide range of professional interests, including environmental protection, regulation of economic interests, and international human rights.

Dean Burns has extensive experience in professional services and consultancies on a wide range of legal issues. Under his direction, the Law Faculty has developed an extensive Asian law program, and redirected its curriculum to reflect the changes in the economy and aspirations of British Columbia.

Dr. Roger Freeman

Roger Freeman is a clinical professor of psychiatry at the University of British Columbia and Chairman of the Recreation and Conservation Committee of the Federation of Mountain Clubs of British Columbia. He is also a director of the Outdoor Recreation Council and co-chairman of the Forest Land Use Liaison Committee.

Dr. Freeman has co-authored several books on hiking trails in B.C. and Arizona, his first being *Exploring the Stein River Valley*, published in 1979.

Joyce Harder

Joyce Harder is Mayor of Lillooet, a businesswoman and a pilot. She has served in key executive positions in the Okanagan Mainline Municipal Association and with the Union of B.C. Municipalities, and served on the Regional District of Squamish-Lillooet Hospital Board.

Ms. Harder is very much aware of the role of the forest industry in regional and municipal economies. She has taken a keen personal interest in small business forestry value-added initiatives, and in public education relating to forestry issues. She also spearheaded the drive to have Lillooet declared the "Forestry Capital of B.C." for 1989.

David Haywood-Farmer

A rancher from Savona, David Haywood-Farmer is President of the Tunkwa Lake Stock Breeders' Association. He has been a member of the B.C. Cattlemen's Association for six years and chairs its public relations committee. Mr. Haywood-Farmer also holds a bachelor of science degree in agriculture from the University of British Columbia.

Dr. Robert W. Kennedy

Dr. Bob Kennedy has been dean of the University of British Columbia's Faculty of Forestry since 1983. Between 1955 and 1961, and again from 1979 to 1983, he was a member of the UBC Faculty of Forestry, teaching and conducting research in wood science and wood utilization.

Dr. Kennedy served as assistant and associate professor at the University of Toronto from 1962 to 1966. Between 1966 and 1979, he held several posts, including deputy director (1973-1975) and director (1975-1979) of the Western Forest Products Laboratory of Environment Canada, the predecessor of Forintek Canada Corp.

Dr. Kennedy is also President of the International Academy of Wood Science, an organization of about 200 elected Fellows recognized for their achievements in wood-based research.

Jack Munro

Recognized as one of British Columbia's most powerful labour leaders, Jack Munro is President of the 50,000-member IWA-Canada. A sometimes outspoken critic of forest management policies, Munro's 27 years in IWA politics have earned him a level of respect unequalled in British Columbia's labour scene.

Mr. Munro, widely recognized as a man who cares for people, has deep concern about the future of the forest industry in the province.

Carmen Purdy

Carmen Purdy is Industrial Relations Manager (pulp) for Crestbrook Forest Industries in Skookumchuck, north of Cranbrook. He has served the company for 21 years.

Mr. Purdy has been Vice-President (four years) and President (two years) of the B.C. Wildlife Federation, President (10 years) of the East Kootenay Wildlife Federation, and a director (two years) of the Nature Trust. He founded the Kootenay Wildlife Heritage Fund in 1980 and has been its president since its inception.

The Honourable Robert Rogers, O.C.

A former Lieutenant-Governor of British Columbia and forest industry executive, The Hon. Bob Rogers is continuing a long and distinguished business and service career in the province.

A civil engineering graduate and veteran of the Second World War, he has held many positions with a wide range of business associations and service bodies. The Hon. Mr. Rogers, a resident of Victoria, is also a past-chairman of the Canadian Forestry Advisory Council.

Garry Sharpe

Garry Sharpe, the general manager of a tourist attraction in Penticton, is President of the Okanagan-Similkameen Tourism Association, a position he has held for five years. Prior to 1985, he served as vice-president and director of the association. Sharpe has also served as charter vice-president (1987-1988) of the Council of Tourism Associations of B.C., and a member (1985-1987) of the Provincial Tourism Advisory Council.

Cyril Shelford

A former Member of the Legislative Assembly who served his constituents for 24 years, Cyril Shelford has a broad background in natural resource management as a businessman, politician and consultant. He has also served as a representative of the Tourist Association of British Columbia and the North West Loggers Association. As well, Mr. Shelford recently conducted inquiries into the management of Peregrine Falcons, and into the British Columbia Milk Board.

John Szauer, RPF

John Szauer, a B.C. registered professional forester, has 30 years of experience in technical and professional forestry, primarily in forest inventory, timber pricing, harvesting administration, and reforestation and silviculture, including limited nursery work.

Mr. Szauer, a resident of Williams Lake, was a senior manager in the British Columbia Forest Service for several years, retiring recently from the position of Regional Manager, Cariboo Forest Region. Szauer is currently self-employed as a consultant.